Draft Record of Decision for Parcel E-2, Hunters Point Naval Shipyard

Comments by U.S. Environmental Protection Agency Remedial Project Manager (Craig Cooper), dated April 19, 2012

Comment No.	Comment	Response
General Comments		
1.	EPA TAG Comments. The technical advisor under EPA's Technical Assistance Grant (TAG) for Hunters Point Naval Shipyard (HPNS) announced that they plan to obtain additional expertise in the matter of the appropriateness of the Parcel E-2 Selected Remedy under CERCLA and EPA technical guidance. EPA supports the HPNS TAG and its decision to obtain this additional expertise for purposes of commenting on the Draft Record of Decision (ROD) and the upcoming remedial design for Parcel E-2. EPA believes that the HPNS TAG will be able to provide its comments on the Draft ROD in a reasonable timeframe and the TAG's participation will ultimately strengthen community confidence in the Selected Remedy. EPA recommends that the Navy consult with EPA prior to issuing the Draft-Final version of the ROD. EPA will periodically coordinate with the HPNS TAG to ensure that they are proceeding in a reasonable manner and schedule. EPA anticipates that the Navy will not finalize the Final ROD until the TAG advisor has had a reasonable opportunity to present the views of its expert.	The Navy understands and supports EPA's[1] decision to solicit input from the HPNS TAG reviewers. The Navy has received and agreed to a request from EPA to delay the submittal of the Draft Final ROD until September 10, 2012. The delay will allow time for the Navy to address comments and incorporate input received from the HPNS TAG reviewers (which are anticipated to be received by August 10, 2012).
2.	Integration of Removal Actions and Remedial Actions. The Navy must meet all the requirements of the Selected Remedy in the Final Parcel E-2 ROD, including all remedial goals, in all locations inside Parcel E-2. Therefore, the ROD needs to clearly describe the relationship and consistency between the past and upcoming removal actions in Parcel E-2 and the Selected Remedy. EPA assumes that all response actions in Parcel E-2 will be fully consistent with the final Selected Remedy. Past removal actions (e.g. PCBs Hot Spot Removal Actions, VOC Hot Spot Removal Action, and Metal Slag Removal Action) need to be checked for compliance with ROD remedial goals. If ROD remedial goals have not been met, then the ROD needs to indicate, in Section 2.9.2 (Selected Remedy) the general	The Selected Remedy will meet all the requirements specified in the ROD, including satisfying all RAOs including remediation goals, which will serve as the basis for the containment elements of the remedy, and meeting the hot spot goals, which will guide the hot spot removal portion of the remedy. The relationship between remediation goals and hot spot goals is described in Section 2.5.3 of the ROD, and is briefly summarized below. The HHRA for Parcel E-2 identified numerous nonradioactive COCs that posed an unacceptable cancer risk or noncancer hazard. The widespread extent of these COCs prompted the Navy to develop a cleanup approach that included removal of the soil areas that posed the most significant risk to humans. The Navy focused the list of COCs to those nonradioactive

[1] Acronyms and abbreviations are summarized at the end of this attachment.

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General Comments (continued)		
2. *(cont.)*	scope of work remaining to be completed at each of these locations. Removal actions scheduled to be implemented in 2012 (e.g. Experimental Ship Shielding TCRA) and prior to the Final ROD signature date, must also be identified with the commitment to ultimately meet Parcel E-2 Final ROD requirements and remedial goals. EPA fully supports the Navy early actions at HPNS to address hot spots including all of the Navy's removal actions in Parcel E-2. However, the results of all early actions must ultimately be consistent with the E-2 ROD. If, as occurred on Parcel B, some of the work currently which was to be conducted as a removal is not expected to be completed prior to the signature of the E-2 ROD (e.g. removal of radiological impacted stormdrain and sewers), provision should be made to continue those activities as part of the remedial action and stated as such in Section 2.9.2 (Selected Remedy) of the ROD.	chemicals present at concentrations that exceeded the remediation goals or a noncancer HI of 1, by a factor of 10 or 100. These areas are referred to as hot spots. The hot spots were categorized based on their potential risk to humans and wildlife: • Near-shore hot spots were determined to pose the most substantial risk because they are a continuing source to groundwater contamination and are located in close proximity to San Francisco Bay. These hot spot goals were established at 10 times the remediation goals. • Upland hot spots were determined to pose a slightly lower risk because they do not appear to be a continuing source to groundwater contamination and are located farther inland from San Francisco Bay. These hot spot goals were established at 100 times the remediation goals. • An area was identified that appears to be a continuing source of VOCs to groundwater. Although this source area does not pose a risk to future recreational users at Parcel E-2, it could migrate to the adjacent Parcel E property at concentrations that may pose an unacceptable risk to future occupants. For VOCs at these locations, hot spot goals were established equal to the remediation goals for future residential occupants (consistent with the planned reuse at the adjacent Parcel E property). The Navy is excavating some of the hot spots identified in the ROD pursuant to a Phase 2 TCRA Action Memorandum for the PCB Hot Spot Area. If hot spot goals have not been achieved through excavation at the date of ROD issuance, the excavation to achieve hot spot goals will be completed as remedial actions pursuant to this ROD. Upon completion of excavation and achievement of the hot spot goals pursuant to the TCRA Action Memorandum and ROD, the Navy will construct the cover pursuant to the remedy selected in the ROD in order to achieve the final remediation goals through breaking the pathway of potential exposure. The Navy is also excavating potential radiological contamination at the Ship-Shielding Area pursuant to a TCRA Action Memorandum (distinct from the Phase 2 TCRA Action Memorandum for the PCB Hot Spot Area). Consistent

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Comments by U.S. Environmental Protection Agency Remedial Project Manager (Craig Cooper), dated April 19, 2012 *(continued)*		
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General Comments (continued)		
2. *(cont.)*	*(see above)*	with the remediation approach identified in the ROD, the TCRA at the Ship-Shielding Area will identify and remove radiological contamination exceeding the remediation goals within 1 foot of ground surface. If radiological remediation goals have not been achieved through excavation at the date of ROD issuance, the excavation to achieve radiological remediation goals will be completed as remedial actions pursuant to this ROD. The ROD was revised to better describe the previously completed removal actions (including the Phase 1 TCRA at the PCB Hot Spot Area and the TCRA at the Metal Slag Area) and the ongoing removal actions (including the Phase 2 TCRA at the PCB Hot Spot Area and the TCRA at the Ship-Shielding Area). Post-excavation data from the previously completed removal actions were evaluated in the RI/FS and these findings are reflected in the ROD. However, the results of the ongoing removal actions are not yet published. Accordingly, a detailed analysis of the post-excavation data for the ongoing removal actions cannot be provided in this ROD. Section 2.9.2 of the Draft ROD indicates the Navy's intent to evaluate post-excavation conditions in the RD and perform additional excavation as part of the remedial action, if necessary to achieve the appropriate goals specified in the ROD. Section 2.9.2 was revised to further clarify that the Phase 2 removal action at the PCB Hot Spot Area is ongoing and post-excavation results are not yet available. Section 2.9.2 was also revised to specify the Navy's plans to remove radioactive contamination at the Ship-Shielding Area, that the post-excavation conditions will be analyzed in the RD (to determine if additional excavation, as part of the remedial action, is necessary to satisfy the RAOs including remediation goals).

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Comment No.	Comment	Response
Specific Comments		
1.	Section 1.2, Statutory Determinations, Page 1-2, 1-3. With respect to the last sentence on Page 1-2, EPA understands that additional PCB Hot Spot Removal work will occur pursuant to the Parcel E-2 remedial action. This comment applies to Page 2-18 and 2-25.	The cited passages on Pages 2-18 and 2-25, which refer to the completion of the Phase 2 removal action at the PCB Hot Spot Area, will be revised to refer the reader to Section 2.9.2. Please refer to the response to general comment 2 for a description of how the removal action relates to the future remedial action (and a description of clarifications made to Section 2.9.2).
2.	Section 2.1, Site Description and History, Page 2-1: The Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents (EPA ROD Guidance) suggests that the lead and support agencies and the source of cleanup monies be included in this section.	The ROD was streamlined in accordance with EPA guidance from September 2011 (titled "*Toolkit for Preparing CERCLA Records of Decision*" and developed in collaboration with the Navy), and is consistent with similar RODs prepared for other HPNS parcels. The ROD declaration (Section 1) identifies the lead and support agencies. The Navy anticipates that the BRAC funding will continue to be used for the HPNS cleanup program, including implementation of the selected remedy at Parcel E-2. The document was not revised in response to this comment.
3.	Section 2.2, Site Characteristics, Page 2-4, and Figure 3 and 4:	
	a. The third bullet on Page 2-4 states that "drain lines in Parcel E and any contamination in them are currently being excavated as part of an ongoing removal action". However, this work does not address the Parcel E-2 storm drain lines, which are depicted on Figures 3 and 4. It is unclear if the Parcel E-2 drain lines will be removed or if they will be capped and left in place. Further, it is unclear if the action to be taken for the Parcel E-2 drain lines will depend on whether radiological contamination is found in the "upstream" lines in Parcel E. Please clarify how the Parcel E-2 storm drain lines will be addressed, including the removal and/or remedial action(s) to be taken, and if such response actions depend on whether upstream lines are found to be contaminated with radionuclides. EPA recommends full removal of the radiological impact storm and sewer lines throughout Parcel E-2 to the extent practicable.	a. Section 2.2 describes existing site conditions within and adjacent to Parcel E-2, and this section is not intended to describe the components of the selected remedy, including removal of drain lines in Parcel E-2. Section 2.9.2 was revised to clarify that drain lines extending into the East Adjacent Area, but located outside of the IR Site 01/21 boundary, and radiological contamination exceeding the remediation goals within these trenches will be removed. The new sentence within Section 2.9.2 will include an electronic reference to more detailed information in Section 12.1 of the Final Radiological Addendum to the RI/FS Report, which states that: *"Remaining sections of sanitary sewer, storm drain, and septic sewer lines that extend into the IR Site 01/21 site boundary would not be removed because the potential radioactivity within these lines is similar to that potentially present in subsurface soil throughout IR Site 01/21 which, as described in Section 11.3, requires containment and*

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Specific Comments (continued)		
3. *(cont.)*		*institutional controls to achieve the radiological RAOs. Remaining sections of sanitary sewer, storm drain, and septic sewer lines that extend into the IR Site 01/21 site boundary would be cut and capped (with an appropriate cement-based grout).*"
	b. Furthermore, with respect to Figure 4, the designation of the wetlands area in this figure may confuse the reader with future planned wetlands areas as part of the E2 remedy. Perhaps, current/temporary features shown in this figure should be explained as such.	b. The title of Figure 4 was revised as "*Parcel E-2 Existing Site Features*" to clarify that all features shown on the figure are based on existing site conditions.
	c. The forth bullet on Page 2-4 concerning the description of waste from NRDL needs clarification. As currently written, it states that NRDL waste may have more likely been disposed of in the Panhandle and East Adjacent areas which were filled earlier (pre NRC oversight) rather than solely in the E-2 landfill. Is this the intended message?	c. The cited bullet was revised as follows: "*Materials used during radiological experiments by NRDL may have been disposed of at the Parcel E-2 Landfill and portions of the Panhandle Area and the East Adjacent Area (located within IR Sites 01/21 and 02). However, historical records presented in the HRA suggest that such material was strictly controlled, particularly after 1954 when the U.S. Atomic Energy Commission began regulating the use of radionuclides at HPNS. This information indicates that the volume of NRDL waste potentially disposed of in and around the Parcel E-2 Landfill was relatively low because most of these ~~landfill~~ areas were ~~was~~ filled after 1955.*"
4.	Section 2.2, Site Characteristics:	
	a. Groundwater Flow Patterns, Page 2-5. Groundwater flow patterns are described here and elsewhere in the Draft ROD (e.g. Section 2.3.5). However, a figure indicating groundwater flow direction(s) is not provided. Please add approximate groundwater flow direction arrows this figure.	a. Figure 4 was revised to include arrows corresponding to the approximate groundwater flow direction in the A-aquifer (based on Figure 2-14 from the Final RI/FS Report).
	b. Parcel E-2 Ecology, Page 2-6. The social and ecological significance of current wetlands are not low solely due to being located on manmade poor quality land but more likely due being impacted and degraded by physical disturbance, grading and site contamination.	b. The subject text in Section 2.2 was revised as follows: "*The existing wetlands provide habitat for wintering and migrating wildlife; however, their value in terms of social significance, effectiveness, and opportunity is low because the wetlands are located ~~on a CERCLA site~~ on manmade land that has been disturbed by human activities and contains chemical contamination.*"

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Comments by U.S. Environmental Protection Agency Remedial Project Manager (Craig Cooper), dated April 19, 2012 *(continued)*

Comment No.	Comment	Response
Specific Comments (continued)		
5.	Section 2.3. Previous Investigations. Was the Navy's past geophysical investigation parcel-wide? If so, then this past investigation warrants its own bullet with a short explanation as to what the geophysical investigation found.	The past geophysical investigations were not performed parcel-wide. Table 1 describes the investigation phases (specifically the Confirmation Study/Verification Step and the OU-I RI) that included geophysical techniques used to assist in identifying the extent of waste in the Parcel E-2 Landfill.
6.	Figure 7. Please edit the legend of Figure 7 so removal action nomenclature is consistent with Table 1. For example, the Orange Zone should be called "PCB Hot Spot Removal Action - Phase 1". It is recommended to call the Purple Zone " PCB Hot Spot Removal Action - Phase 2" and the Green Zone should be called "Metal Slag Removal Action". Why are the Ship Shielding removal action and the Interim Landfill Cap missing from Figure 7 since they are listed in Table 1?	Figure 7 was revised as suggested. Figure 7 was also revised to include the Ship-Shielding Area and the interim landfill cap.
7.	Section 2.3.3, Shoreline Sediment. This section omits reference to PCBs found in E-2 shoreline sediments that are potential sources of contamination to Parcel F. Please explain why or add text describing PCBs in Parcel E-2 as a potential source to Parcel F PCB contamination.	Section 2.3.3 was revised to indicate that, consistent with Appendix G of the Final RI/FS Report, PCBs in shoreline sediment are a potential source of contamination to Parcel F. The Navy wishes to clarify that the electronic reference provided in Section 2.3.3 describes the previous conclusions in more detail. Specifically, the previous assessment identified some uncertainty regarding the potential for PCBs in shoreline sediment to serve as a potential source of contamination to Parcel F.
8.	Section 2.3.6. Radionuclides in Soil, Sediment, and Groundwater. Will this ROD document the final Cobalt-60 release criterion developed under the Ship Shielding Action Memo process? If this release criterion is different than what was used in the Parcel E-2 Feasibility Study and Proposed Plan, then this new remediation level should be documented in the Parcel E-2 ROD in accordance with the EPA ROD guidance.	Section 2.3.6 was revised to note that the Navy has initiated a removal action in the Ship-Shielding Area to address potential radiological contamination and, in the process of planning the removal action, has revised the release criterion for Cobalt-60 (0.252 pCi/g; as documented in the action memorandum for the removal action at the Ship-Shielding Area). Section 2.7 and Table 6 were revised to document the remediation goal for Cobalt-60.
9.	Section 2.3.6. Radionuclides in Soil, Sediment, and Groundwater. a. The information presented regarding the extent of Ra-226 and Cobalt-60 contamination requires further clarification. EPA assumes that the Navy has screened all radiological data to date for purposes of identifying radiological exceedences in soil including exceedences or hot spots appropriate for either early removal action or remedial action under this ROD. Please describe the Navy efforts to screen all radiological data for Parcel E-2.	a. Section 2.3.6 states that past radiological investigations have involved collecting over 1,000 soil samples near the ground surface, and explains that the data have been compared against residential and outdoor worker remediation goals. The previous radiological investigations are identified in Table 1, and additional information is provided in the electronic references embedded within Section 2.3.6.

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Comments by U.S. Environmental Protection Agency Remedial Project Manager (Craig Cooper), dated April 19, 2012 *(continued)*

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9. *(cont.)*	b. EPA also understands that Parcel E-2 will be re-scanned, re-tested, and any radiological exceedences for purposes of pre-remedial design delineation and appropriate for remedial action will be removed to a minimum of 1 foot deep. Please clearly describe the Navy's planned remedial action with respect to radiological contamination in the Selected Remedy section of the ROD (Section 2.9.2). c. Also, please clarify if the previous Cobalt-60 exceedences were located in the Experimental Ship Shielding area.	b. Section 2.9.2 was revised to state that (1) the selected remedy would include radiological screening to be performed throughout Parcel E-2 in conjunction with the proposed excavation activities; (2) radiologically contaminated soil, sediment, or debris identified during the screening process would be removed and disposed of off site; (3) final radiological surveys would be performed to demonstrate the successful removal of radiological contamination (exceeding the remediation goals) within the upper 1 foot of the excavated subgrade; and (4) radiological risk modeling would be performed to verify that residual radiological risk at the final ground surface (following installation of a demarcation layer and soil cover) is within the risk management range specified in the NCP (10^{-6} to 10^{-4}). c. Yes, Cobalt-60 was reported in the Ship-Shielding Area at activity levels exceeding the criteria specified in Section 2.3.6. Section 2.3.6 summarizes the Cobalt-60 data for the eight survey units that fall within the Ship-Shielding Area (the only area in Parcel E-2 where Cobalt-60 is an ROC).
10.	Section 2.4, Current and Future Site Uses. a. Potential chemical soil contamination in the Shipyard South Multi-Use District portion of Parcel E-2 must be addressed by the ROD's selected remedy (Section 2.9.2) just as will other areas in Parcel E-2. Containment only, as discussed in this section, may not be acceptable for the Shipyard South Multi-Use District. As described in Section 2.9.2, all soil hot spots as defined are to be excavated and removed to depth (up to 10 feet bgs) and then covered by a liner and two feet of clean soil cover. In accordance with Section 2.9.2, soil contamination within Parcel E-2, including soil contamination located in the Shipyard South Multi-Use District, would first have to checked again the criteria for hot spots as described in Table 4 of the ROD so a determination if a	a. As described in Section 2.9.2 of the Draft ROD, the Navy previously determined that, with relatively minor adjustments, the selected remedy could properly contain low-level soil contamination in the small portion of the Shipyard South Multi-Use District portion located in Parcel E-2, thereby accommodating future industrial or residential use in this area. In making this prior determination, the Navy verified that soil concentrations in the area do not exceed either the upland hot spot goals or the VOC source area goals (per ROD Table 4). However, in response to this comment (and another comment from CCSF), the Navy has reevaluated its position and decided that a boundary change for Parcels E and E-2 is the most effective way to align the CERCLA documentation with the

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Comment No.	Comment	Response
Specific Comments (continued)		
10. *(cont.)*	hot spot removal is first applicable prior to the required containment remedial actions. b. Any changes to the Proposed Plan recommended alternative (Alternative 5) must be documented in this ROD in accordance with the EPA's ROD guidance.	CCSF's 2010 amended redevelopment plan (SFRA, 2010). Specifically, the boundary between Parcels E and E-2 will be changed so that the Shipyard South Multi-Use District is no longer located in Parcel E-2, thereby ensuring that the planned reuse for Parcel E-2 will be limited to open space. b. The Navy understands and agrees with EPA's request. The only documented change from the Proposed Plan pertains to the revised criterion for Cobalt-60 and the revised boundary between Parcels E and E-2. Both changes will be described in the Draft Final ROD.
11.	Section 2.5.3, Basis for Response Action, Page 2-21: The text of the last bullet on page 2-21 discusses risk to recreational users in Parcel E-2 and to future Parcel E occupants, but does not discuss the potential risk to occupants of the small mixed reuse area in Parcel E-2. Based on a comparison of Figures 8 and 10, it appears that a small portion of the volatile organic compound (VOC)-contaminated soil underlies the Shipyard South Multi-Use District (mixed reuse area). This area was not fully excavated during the 2010-2012 removal action. Please revise the text to acknowledge the potential risk to future occupants of this mixed reuse area and add the continuation of this work to the Selected Remedy (Section 2.9.2).	As stated in the response to specific comment 10, the Navy has decided to change the boundary between Parcels E and E-2 so that the Shipyard South Multi-Use District is no longer located in Parcel E-2, thereby ensuring that the planned reuse for Parcel E-2 will be limited to open space. This change will be reflected, as appropriate, throughout the Draft Final ROD. For informational purposes, the Navy verified that soil concentrations in the subject portion of the Shipyard South Multi-Use District do not exceed the hot spot goals for the VOC source area (per ROD Table 4, which are consistent with residential risk-based concentrations for Parcel E). The recent VOC data will be published in the removal action completion report for the Phase 2 PCB Hot Spot Area TCRA, and will be further evaluated in the FS Report for Parcel E. In addition, the Navy has collected soil gas and groundwater data in this area as part of a treatability study for the PCE plume that crosses the Parcel E/E-2 boundary (Shaw, 2011). The soil gas and groundwater data in this area did not exceed conservative risk-based screening levels. Specifically, Figures 35 and 36 of the 2011 summary report present the pertinent results for four locations (IR12B053 and IR12B054 [soil gas] and IR12MW44A and IR12MW46A [groundwater wells]) within this area.

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Specific Comments (continued)		
12.	Section 5.3, Basis for Response Action, Page 2-24 and Figure 11, Groundwater Areas Posing a Potential Risk to Aquatic Wildlife, Page 2-24: The text states that un-ionized ammonia and sulfide may pose a risk to aquatic wildlife, but these constituents are not included on Figure 11. Since the other constituents that may pose a risk to aquatic wildlife are included on Figure 11, please include the areas with un-ionized ammonia and sulfide on this figure.	Section 5 and Appendix M of the Parcel E-2 RI/FS Report presented a conservative screening of un-ionized ammonia and sulfide concentrations relative to surface water criteria. Although this conservative evaluation identified a potential risk to aquatic wildlife, the properties of these compounds did not warrant identification of specific groundwater areas of concern. Accordingly, Section 2.5.3 states that: "*Un-ionized ammonia and sulfide are not shown on Figure 11 because these COPECs are generated during decomposition of organic matter (both naturally occurring and anthropogenic) in reducing environments, and are readily transformed to non-toxic compounds upon discharge to oxygenated surface water. Accordingly, neither source removal nor containment is needed to protect aquatic wildlife from exposure to these COPECs; however, monitoring for these COPECs will be performed to verify the protectiveness of the remedy.*" Figures 5-5 and 5-6 of the RI/FS Report present the un-ionized ammonia and sulfide results in groundwater and compare them with surface water criteria.
13.	Section 2.6, Principal Threat Waste, Page 2-25: This section and the hot-linked text from the Final Remedial Investigation/Feasibility Study Report for Parcel E-2 (Final E-2 RI/FS) do not acknowledge the lead that remains in place at the conclusion of the 2010-2012 removal action. This high-concentration lead contamination is fairly shallow and was not excavated from the East Adjacent Area. Please revise the discussion of principal threat waste to include the lead contamination that remains in place after the removal actions and add the continuation of this work to the Selected Remedy (Section 2.9.2).	Section 2.6 was revised to discuss the elevated lead concentrations in the East Adjacent Area. Specifically, Section 2.6 was revised to state: "*In addition, elevated lead concentrations in the East Adjacent Area were identified as potential principal threat wastes because concentrations exceed the remediation goals by more than 100 times and are located at relatively shallow depths (4 feet bgs). To promptly address this potential threat, the Navy added this area to the Phase 2 removal action at the PCB Hot Spot Area. As discussed previously, the Phase 2 removal action is scheduled to be completed in 2012 (see Section 2.9.2 for further information on potential follow-on action in this area).*" The Navy wishes to clarify that the elevated lead concentrations cited by the reviewer were found at Tier 3 hotspot excavations performed as part of the Phase 2 removal action at the PCB Hot Spot Area. This removal action is not yet complete and therefore the cited data (which has been shared during past BCT meetings) have not yet been published for incorporation into the ROD. In addition, the elevated lead concentration found following excavation during the Phase 2 removal action (111,000 mg/kg at 2 feet bgs) is generally comparable with the highest lead

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13. *(cont.)*	*(see above)*	concentration identified prior to excavation (256,000 mg/kg at 4 feet bgs, which has since been removed).
14.	Section 2.7, Remedial Action Objectives, Page 2-26: It is unclear why the remedial action objectives (RAOs) do not include preventing vapor intrusion from groundwater (and soil) in the VOC source area shown on Figure 2-10. Please include an RAO to address vapor intrusion from VOC contamination in groundwater and soil (re: Shipyard South Multi-Use District mixed reuse area).	As stated in the response to specific comment 10, the Navy has decided to change the boundary between Parcels E and E-2 so that the Shipyard South Multi-Use District is no longer located in Parcel E-2, thereby ensuring that the planned reuse for Parcel E-2 will be limited to open space. RAOs for vapor intrusion will not be added to the Draft Final ROD because the vapor intrusion pathway is incomplete for future recreational exposure. Potential risks to future residents in the Shipyard South Multi-Use District (from complete exposure pathways such as vapor intrusion) and appropriate remedial alternatives will be evaluated in the Parcel E Feasibility Study Report.
15.	Table 6. Remediation Goals for Radionuclides in Soil and Sediment. Please add a footnote regarding the Radium-226 remediation goal (i.e. 1.0 pCi/g above radium background for Parcel E-2). State that calculation of the Radium-226 background level for Parcel E-2 is subject to Regulatory agency approval.	Table 6 was revised to include a footnote describing the regulatory negotiation that led to identification of this remediation goal. The footnote also specifies the current background levels for surface soil and storm drain and sewer lines (0.633 and 0.485 pCi/g, respectively).
16.	Table 7, Remediation Goals for Groundwater. Are the groundwater standards presented in Table 7 protective of the Bay and compliant with State ARARs (i.e. California Toxics Rule). In Section 2.9.2, please identify the process for identifying the groundwater "points of compliance" and the process for triggering if/when groundwater extraction will occur (i.e. remedial design decision).	Attachment 4 identifies the chemical-specific ARARs for surface water that include water quality criteria specified in the California Toxics Rule and the Basin Plan. These water quality criteria are incorporated into the groundwater and surface water RAOs in a manner that will ensure protection of aquatic wildlife in San Francisco Bay. However, these water quality criteria apply to surface water at the interface of A-aquifer groundwater, and were not identified as remediation goals for in-situ A-aquifer groundwater. Section 2.7 was revised to explain, consistent with statements in Section 9.3 of the Final RI/FS Report, that: • With the exception of total TPH, chemicals in groundwater that may pose a risk to aquatic wildlife in San Francisco Bay are considered COPECs given the conservative nature of the groundwater SLERA. As such, groundwater remediation goals have not been developed for these COPECs.

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16. *(cont.)*	*(see above)*	• The water quality criteria, as referenced in the groundwater RAO, are based on standards for aquatic wildlife in San Francisco Bay, apply to surface water at the interface of A-aquifer groundwater, and do not apply to in-situ A-aquifer groundwater at Parcel E-2. Development of specific monitoring criteria for A-aquifer groundwater that address the potential risk to aquatic wildlife in San Francisco Bay requires a more refined fate and transport modeling to more rigorously assess the groundwater-to-surface water transport mechanism. Such refined modeling is not considered necessary to proceed with the ROD because the source removal, containment, and monitoring actions, as evaluated in the remedial alternatives, will address the potential risk to aquatic wildlife in San Francisco Bay. Section 2.9.2 was revised to specify that the RD will develop specific monitoring criteria for A-aquifer groundwater that address the potential risk to aquatic wildlife in San Francisco Bay. The groundwater point of compliance is defined, in accordance with the NCP and Cal. Code Regs., tit. 22 § 66264.95, at the downgradient edge of the waste management unit. Consistent with information presented in Appendix N of the RI/FS Report, the downgradient edge of the waste management unit is the Parcel E-2 boundary. The electronic reference provided in Section 2.7, provides a map showing the point of compliance for Parcel E-2.
17.	Table 9, Relative Ranking of Remedial Alternatives, Page 2-33 and Section 2.8.2, Comparative Analysis of Alternatives, Page 2-34: It is unclear why the alternatives are scored with half-filled circles, indicating good ranking for the criterion reduction in toxicity, mobility, or volume through treatment, when treatment is not a significant component of these alternatives (as stated on page 2-34). This criterion requires treatment, so alternatives that do not involve significant treatment should be scored fair or poor. Please make this change.	Table 9 was updated to change the ratings for "reduction in toxicity, mobility, or volume through treatment" for Alternatives 2, 3, 4, and 5 from "Moderate" to "Fair." Each of these alternatives involves ancillary treatment that is not a significant component of the proposed actions.

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Comment No.	Comment	Response
Specific Comments (continued)		
18.	Section 2.8.2, Comparative Analysis of Alternatives, Page 2-34. a. Under Short-term Effectiveness, it is EPA's opinion that for Alternative 2, site workers and the nearby surrounding community may be exposed to potentially unsafe levels of landfill contaminants during excavation work in addition to exposure to increased dust, noise and construction traffic. Please check the Introduction section the Responsiveness Summary to see if additional text could be introduced here to bolster the rationale for the selection of Alternative 5. b. Under Community Acceptance, please replace "citizens" with "residents" for describing local community members who favor Alternative 5.	a. The second sentence in Section 2.8.2 was revised to state: *"Because of its invasive nature, Alternative 2 would pose more short-term risks to site workers and the surrounding community than the containment remedies (Alternatives 3, 4, and 5). These risks could include exposure to dust, noise, contaminated material, objectionable odors, and increased construction traffic*." b. The cited sentence in Section 2.8.2 was revised as suggested. Similar statements in the responsiveness summary were revised accordingly.
19.	Figure 12, Hot Spot Excavations and Groundwater Containment Features, Page 2-37: The legend on Figure 12 includes a note regarding the Upland Hot Spot that "some of these areas were recently excavated as part of a removal action;" however, this figure does not indicate which hot spots were fully removed (to ROD remediation goals) and which contain residual contamination to be addressed by remedial actions under this ROD. As noted in earlier comments, some of the potential hot spots with VOC, PCB and metals contamination remain in place at or near past early action removal actions. Please revise Figure 12 to identify hot spots that still remain in place or revise the note to state that portions of some upland hot spot areas were not excavated. In addition, it is unclear why this figure does not include the removal action being conducted at the Experimental Ship-Shielding Area in the Panhandle Area. Please revise this figure to include the Experimental Ship-Shielding Area.	Figure 12 was revised to distinguish between hot spot excavations that have been initiated under removal actions and those where excavation will not be initiated until the remedial action. However, the Navy wishes to clarify several additional points regarding this comment: • As discussed in the response to general comment 2, results of the ongoing removal actions, including the Phase 2 PCB Hot Spot Area TCRA and the Ship-Shielding Area TCRA, are not yet published. Accordingly, a detailed analysis of the post-excavation data for the ongoing removal actions cannot be provided in this ROD. Section 2.9.2 was revised to specify the Navy's intent to evaluate post-excavation conditions in the RD and perform additional excavation as part of the remedial action, if necessary to achieve the appropriate goals specified in the ROD. • The proposed removal action at the Ship-Shielding Area was identified in Figure 7, as described in the response to specific comment 6. This removal action was proposed based on historical operations that may have resulted in Cobalt-60 contamination; however, the existing data do not indicate the presence of any Cobalt-60 "hot spots," and the Navy does not believe that it is appropriate to revise Figure 12 to identify the proposed removal action area.

Draft Record of Decision for Parcel E-2, Hunters Point Naval Shipyard

Comments by U.S. Environmental Protection Agency Remedial Project Manager (Craig Cooper), dated April 19, 2012 *(continued)*

Comment No.	Comment	Response
Specific Comments (continued)		
20.	Section 2.9.2, Description of Selected Remedy, Page 2-37. The last paragraph on Page 2-37 states that "Radiological contamination near the ground surface will also be removed and disposed of at one or more approved off-site landfills, appropriate". EPA agrees with this statement but further clarification is required. First, EPA understands radiological contamination at the ground surface to mean surface soil (or sediment) containing one or more radionuclide in exceeding its remediation goal for radionuclides as identified in Table 6. In addition, the requirement for additional searching for radiological contamination via scanning technology(s) and surface soil sampling at locations of elevated scan readings is missing from Section 2.9.2 and should be added to this section (see Comment #9).	As described in the response to specific comment 9, Section 2.9.2 was revised to state that (1) the selected remedy would include radiological screening to be performed throughout Parcel E-2 in conjunction with the proposed excavation activities; (2) radiologically contaminated soil, sediment, or debris identified during the screening process would be removed and disposed of off site; (3) final radiological surveys would be performed to demonstrate the successful removal of radiological contamination (exceeding the remediation goals) within the upper 1 foot of the excavated subgrade, and (4) radiological risk modeling would be performed to verify that residual radiological risk at the final ground surface (following installation of a demarcation layer and soil cover) is within the risk management range specified in the NCP (10^{-6} to 10^{-4}).
21.	Section 2.9.2, Description of Selected Remedy, Page 2-38. a. The landfill cover description needs to clarify the relationship and consistency between the interim cover and the final cover. Please make Figures 8 and 13 consistent with respect to both the extent of the interim landfill cap and extent of landfill on UCSF property. b. EPA agrees with the ROD inclusion of the State ARAR for compaction of the foundation layer and assumes that the landfill cover foundation layer and compaction requirements for the entire landfill will be specified during the remedial design. Please clarify. c. The discussion of extending the remedy onto the adjacent UCSF property requires clarification. EPA assumes that the Selected Remedy for the landfill cover will be constructed in accordance with the Final ROD requirements regardless if such cover is on Navy property or and non-Navy property (e.g. UCSF property). EPA further assumes that all land use and activity restrictions described in Section 2.9.2 will apply to both Navy property and non-Navy property (e.g. UCSF property). Please make the necessary clarifications to Section 2.9.2.	a. Section 2.9.2 was revised to state, consistent with Section 12.2.3.6 of the Final RI/FS Report, that: *"The new protective liner would be contiguous with the existing landfill cap; however, portions of the existing landfill cap would be removed to achieve the design grades, and a new protective liner would be constructed in these areas.*" Figure 8 was revised to show the extent of the Parcel E-2 Landfill, consistent with Figure 13 (and other figures in the ROD). Figures 4 and 7 identify the extent of the interim landfill cap. b. Yes, the RD will specify the requirements for the landfill cover foundation layer, including the required compaction standards. Construction of the soil covers at Parcel E-2 will comply with the action-specific ARARs identified in Attachment 4 of the Draft ROD. c. Yes, the selected remedy will be constructed in accordance with the Final ROD requirements regardless whether the cover is on Navy property or non-Navy property. Section 2.9.2 was revised to clarify that the proposed landfill cover and institutional controls will apply to the small portion of the Parcel E-2 Landfill that extends north onto property owned by UCSF.

Draft Record of Decision for Parcel E-2, Hunters Point Naval Shipyard

Comments by U.S. Environmental Protection Agency Remedial Project Manager (Craig Cooper), dated April 19, 2012 *(continued)*

Comment No.	Comment	Response
Specific Comments (continued)		
21. *(cont.)*	d. It may be prudent for the E-2 ROD to include a contingency action (e.g. removal of solid waste from UCSF property) if pre-remedial design analysis indicates such an action is feasible and cost-effective.	d. The Navy believes that solid waste that extends north onto property owned by UCSF can be safety and reliably contained, and that removal of the solid waste is not necessary to protect human health and the environment. The Navy's determination is supported by existing information presented in the RI/FS Report, which includes information demonstrating the Navy's successful removal of landfill gas that had previously migrated onto the UCSF compound. In addition, the Navy wishes to clarify that solid waste within UCSF property covers approximately 0.8 acre and may be present at depths of up to 30 feet. Section 11.6.1 of the RI/FS Report discusses the significant implementation challenges and short-term risks associated with excavating solid waste at this depth.
22.	Section 2.9.2, Description of Selected Remedy, Pages 2-39 and 2-40: The last paragraph on page 2-39 does not acknowledge that VOC contamination remains in place in the VOC hot spot area, which underlies a portion of the Shipyard South Multi-Use District. This VOC contamination should be addressed by the Selected Remedy. Please revise the ROD to include action to address this VOC contamination (see previous comment on this issue).	As discussed in the response to specific comments 10 and 11, the Navy has decided to change the boundary between Parcels E and E-2 so that the Shipyard South Multi-Use District is no longer located in Parcel E-2, thereby ensuring that the planned reuse for Parcel E-2 will be limited to open space. This change will be reflected, as appropriate, throughout the Draft Final ROD. In addition, consistent with the response to specific comment 11, the Navy verified that soil concentrations in the subject portion of the Shipyard South Multi-Use District (which will be moved from Parcel E-2 to Parcel E) do not exceed the hot spot goals for the VOC source area (per ROD Table 4, which are consistent with residential risk-based concentrations for Parcel E). As described in the response to general comment 2, results of the ongoing removal actions, including excavation at the VOC source area, are not yet published. Accordingly, a detailed analysis of the post-excavation data for the portion of the VOC source area that will remain in Parcel E-2 cannot be provided in this ROD. Section 2.9.2 was revised to specify the Navy's intent to evaluate post-excavation conditions in the RD and perform additional excavation as part of the remedial action, if necessary to achieve the appropriate goals specified in the ROD.

Draft Record of Decision for Parcel E-2, Hunters Point Naval Shipyard

Comments by U.S. Environmental Protection Agency Remedial Project Manager (Craig Cooper), dated April 19, 2012 *(continued)*

Comment No.	Comment	Response
Specific Comments (continued)		
23.	Section 2.9.2, Description of Selected Remedy, Page 2-38. Landfill Gas Control.	
	a. Please clarify that landfill gas control system will comprehensively control landfill gas in accordance with ARARs managing landfill gas required by this ROD.	a. Section 2.9.2 was revised to clarify that the system will control landfill gas in accordance with pertinent state and federal ARARs (as detailed in Attachment 4).
	b. In addition, EPA understands that the landfill gas controls to consist of an absorbent material (for NMOCs) and (not "or") an enclosed flare (for the methane gas). Please change the "or" to an "and" in the sentence regarding control technologies.	b. The conceptual designs evaluated in the RI/FS Report did not include use of both an enclosed flare and adsorbent material to treat landfill gas, but evaluated each technology as mutually exclusive options for Alternatives 3, 4, and 5. The Navy does not agree that both adsorbent material and an enclosed flare are necessary for the selected remedy, and wishes to clarify the following points that are detailed in the RI/FS Report: • BAAQMD Regulation 8, Rule 34 pertains to landfill gas collection and emission control and includes requirements for the treatment of NMOCs. However, as detailed in Appendix N of the RI/FS Report, BAAQMD Regulation 8, Rule 34 (and its associated requirements for treatment of NMOCs) is not an ARAR for the selected remedy because the Parcel E-2 Landfill meets the exemption criteria: (1) the landfill is a closed landfill or an inactive landfill with no design capacity available for future waste deposition; (2) the landfill last received solid waste at least 30 years ago; and (3) the landfill has an in-place tonnage of less than 1,000,000 tons. • A potential landfill gas control system at Parcel E-2 would be subject to BAAQMD Regulation 8, Rule 2, which limits carbon emissions from any miscellaneous operation. Because the vast majority of carbon emissions from the Parcel E-2 Landfill are associated with methane, future landfill gas treatment, if necessary, would need to focus on methane removal to ensure compliance with BAAQMD Regulation 8, Rule 2.

Draft Record of Decision for Parcel E-2, Hunters Point Naval Shipyard		
Comments by U.S. Environmental Protection Agency Remedial Project Manager (Craig Cooper), dated April 19, 2012 *(continued)*		
Comment No.	**Comment**	**Response**
Specific Comments (continued)		
23. *(cont.)*	*(see above)*	• Preliminary modeling results (provided in Appendix P2 of the RI/FS Report) indicate that landfill gas generation rates from Parcel E-2 would be relatively low compared to active landfills. Additional studies will be performed in conjunction with the RD to better estimate the gas generation rates and to determine the content of the landfill gas. This study could reveal that treatment of landfill gas prior to discharge is required. • To address the potential need for landfill gas treatment, the Navy evaluated several technologies in Section 11.5.4 of the RI/FS Report and then identified two potential landfill gas treatment options for Alternatives 3, 4, and 5. As described in Section 12.2.3.9 of the RI/FS Report, two mutually exclusive options were identified for potential treatment of landfill gas at Parcel E-2: (1) enclosed flare, and (2) adsorbent material (GAC and potassium permanganate). • An enclosed flare is a demonstrated effective technology that, when properly designed and operated, typically destroys 99 percent of methane and NMOCs in landfill gas (and minimizes the potential for creation of dioxins as a combustion byproduct). In contrast, adsorbent material would effectively remove NMOCs but would not be effective in removing methane.

Draft Record of Decision for Parcel E-2, Hunters Point Naval Shipyard		
Comments by California Department of Toxic Substances Control Remedial Project Manager (Ryan Miya), dated May 15, 2012		
Comment No.	**Comment**	**Response**
1.	Section 1.1 – Selected Remedy. Paragraph two, third bullet. The text states that the selected remedy will include installation of "a protective liner and soil cover over all of Parcel E-2". However, the selected remedy (Alternative 5) includes unlined freshwater wetlands. Please clarify.	The subject bullet item was revised, based on this comment and comment 2 from CCSF[2], to state: "*Install a ~~protective liner and~~ soil cover over all of Parcel E-2, with a protective liner (consisting of a geomembrane with an overlying geocomposite drainage layer) where needed to limit infiltration.*"
2.	Section 1.4 – Authorizing Signatures. Please change the DTSC signatory from "Ryan K. Miya; San Francisco Peninsula Team Leader" to "Denise M. Tsuji; Unit Chief".	Section 1.4 was revised as requested.
3.	Section 2.5.1 – Human Health Risk Assessment (HHRA). The HHRA results presented in Table 2 and described in the text present cancer risks and noncancer hazards for each Parcel E-2 area. Chemical risks and noncancer hazards for all areas should be evaluated using the residential exposure scenario independent of planned reuse. The residential exposure scenario is the most conservative and is necessary because reuse areas may change in the future. Furthermore, exceedances of the unrestricted (residential) land use scenario risks can then be used to justify the need for remedy selection.	The HHRA, as presented in the Draft Final RI/FS Report (published in February 2009), was focused on the reasonably anticipated reuse of Parcel E-2, which did not include residential use. The RI/FS Report (and associated HHRA) was finalized in May 2011, and no revisions or updates to the HHRA were required. This decision is consistent with the preamble to the NCP and EPA risk assessment guidance, as detailed below. • NCP Preamble, 55 Fed. Reg. 8710-8711: "*Residential land use assumptions generally result in the most conservative exposure estimates. The assumption of residential land use is not a requirement of the program but rather is an assumption that may be made, based on conservative but realistic exposures, to ensure that remedies that are ultimately selected for the site will be protective. An assumption of future residential land use may not be justifiable if the probability that the site will support residential use in the future is small.*" • Land Use in the CERCLA Remedy Selection Process (OSWER Directive 9355.7-04): "*The baseline risk assessment generally needs only to consider the reasonably anticipated future land use; however it may be valuable to evaluate risks associated with other land uses.*" • Risk Assessment Guidance for Superfund, Volume 1 (EPA/540/1-89/002): "*Because residential land use is most often associated with the greatest exposures, it is generally the most conservative choice to make*

[2] Acronyms and abbreviations are summarized at the end of this attachment.

Draft Record of Decision for Parcel E-2, Hunters Point Naval Shipyard

Comments by California Department of Toxic Substances Control Remedial Project Manager (Ryan Miya), dated May 15, 2012

Comment No.	Comment	Response
3. *(cont.)*	*(see above)*	*when deciding what type of alternate land use may occur in the future. However, an assumption of future residential land use may not be justifiable if the probability that the site will support residential use in the future is exceedingly small.*" In addition, exclusion of the residential exposure scenario from the HHRA does not represent a deficiency in the evaluation of potential remedial alternatives for Parcel E-2. As presented in the RI/FS Report, the risk assessment results for less conservative exposure scenarios (recreational and construction worker) indicated that existing conditions at Parcel E-2 posed an unacceptable risk to human health requiring evaluation of remedial alternatives. Because a risk evaluation using more conservative exposure factors associated with potential residential reuse would have reached the same conclusion, it is not necessary to quantify nonradiological risk for the residential exposure scenario. The remedial alternatives evaluated for Parcel E-2 include a combination of removal and containment actions, combined with institutional controls, that will be adequately protective of human health and will prevent exposure associated with potential residential use.
4.	Section 2.7 – Remedial Action Objectives. a. Groundwater RAOs, Protection of Wildlife subsection. The corresponding "water quality criteria for aquatic wildlife" to which this RAO applies does not appear in any of the remediation goals tables. Please provide additional information clarifying this objective either in the form of an additional table or in the subsection text.	a. Attachment 4 identifies the chemical-specific ARARs for surface water that include water quality criteria specified in the California Toxics Rule and the Basin Plan. These water quality criteria are incorporated into the groundwater and surface water RAOs in a manner that will ensure protection of aquatic wildlife in San Francisco Bay. However, these water quality criteria apply to surface water at the interface of A-aquifer groundwater, and were not identified as remediation goals for in-situ A-aquifer groundwater. Section 2.7 was revised to explain, consistent with statements in Section 9.3 of the Final RI/FS Report, the rationale for not specifying remediation goals for each COPEC in groundwater (further detail is provided in the response to EPA specific comment 16). In addition, Section 2.9.2 was revised to specify that the RD will develop specific monitoring criteria for A-aquifer groundwater that address the potential risk to aquatic wildlife in San Francisco Bay.

Draft Record of Decision for Parcel E-2, Hunters Point Naval Shipyard

Comments by California Department of Toxic Substances Control Remedial Project Manager (Ryan Miya), dated May 15, 2012 *(continued)*

Comment No.	Comment	Response
4. *(cont.)*	b. Surface Water RAOs subsection. Same comment as above regarding the corresponding "water quality criteria for aquatic wildlife" also applies to this subsection.	b. See response to comment 4a above.
5.	Section 2.8 – Description and Evaluation of Remedial Alternatives. The text should be modified to include a brief description of what is planned for sections of sanitary sewer, storm drain, and septic sewer lines that may extend into the IR 01/21 site. In accordance with the 2011 Radiological Addendum to the Remedial Investigation / Feasibility Study Report for Parcel E-2, the lines will be cut, capped, and grouted at the IR 01/21 site boundary under Alternatives 2, 3, 4, and 5 in order to prevent these lines from serving as potential preferential pathways for groundwater flow.	Section 2.8 was revised to specify, consistent with the radiological addendum to the RI/FS Report, that Alternatives 2, 3, 4, and 5 include removal and remediation of sanitary sewer, storm drain, and septic sewer lines that extend into the East Adjacent Area but are located outside of the IR Site 01/21 boundary. Also, as described in the response to EPA specific comment 3a, Section 2.9.2 was revised to specify that the selected remedy includes this same action and to provide an electronic reference to the more detailed description in the radiological addendum to the RI/FS Report (that describes the proposed cutting and capping of drain lines at the IR Site 01/21 boundary).
6.	Table 5 – Remediation Goals for Nonradioactive Chemicals in Soil and Sediment. Residential cleanup goals should be applied independent of future planned reuse and must be included. As stated previously, the residential exposure scenario is the most conservative and is necessary because reuse areas may change in the future. Furthermore, exceedances of the unrestricted (residential) land use scenario risks can then be used to justify the need for remedy selection. Presentation of all the non-residential exposure scenario remediation goals also potentially confuses readers as to what condition each remediation goal applies and consideration should be given for their removal from the table.	The Navy does not agree that residential cleanup goals should be applied independent of future planned reuse, and wishes to clarify that such an approach is inconsistent with the selected remedies for other HPNS parcels. Please see the response to comment 3 regarding the justification for not revising the HHRA to include a residential exposure scenario. Consistent with the previous RODs for other HPNS parcels, the Draft ROD for Parcel E-2 includes RAOs and remediation goals for each exposure scenario evaluated in the HHRA, which includes construction worker exposure. In addition, the Navy wishes to clarify that the proposed institutional controls provide legal and administrative mechanisms by which future changes in land use would be reviewed and approved by the FFA signatories.
7.	Table 6 – Remediation Goals for Radionuclides in Soil and Sediment. Footnote "a". The footnote states that residential use is not planned for Parcel E-2. However, the text in section 2.4 (Current and Potential Future Site Uses) states that a small area (about 0.42 acres) in the East Adjacent Area is part of the "Shipyard South Multi-Use District," and may be used for recreational, industrial, and residential purposes. Please clarify.	As described in the response to EPA specific comment 10a, the Navy has reevaluated its position and decided that a boundary change for Parcels E and E-2 is the most effective way to align the CERCLA documentation with the CCSF's 2010 amended redevelopment plan. Specifically, the boundary between Parcels E and E-2 will be changed so that the Shipyard South Multi-Use District is no longer located in Parcel E-2, thereby ensuring that the planned reuse for Parcel E-2 will be limited to open space.

Draft Record of Decision for Parcel E-2, Hunters Point Naval Shipyard

Comments by California Department of Toxic Substances Control Remedial Project Manager (Ryan Miya), dated May 15, 2012 *(continued)*

Comment No.	Comment	Response
8.	Table 7 – Remediation Goals for Groundwater. Residential cleanup goals should be applied to all Parcel E-2 areas independent of future planned reuse and must be included. Presentation of construction worker exposure scenario remediation goals potentially confuse readers as to what condition each remediation goal applies and consideration should be given for its removal from the table.	Please see the response to comment 6.
9.	Section 2.8.1 – Description of Remedial Alternatives. Alternative 2. It is unclear why institutional controls and monitoring would be necessary for this alternative as all waste and contaminated soil would be removed. Either consideration should be given to remove it or a brief description of why these would be necessary should be included in the text. In addition, please consider providing additional text describing that this alternative would also require clean backfill of comparable volume or more to be brought back onsite prior to freshwater wetland construction. The same comment applies to Table 8.	Consistent with information presented in the RI/FS Report, Alternative 2 was not developed to facilitate unrestricted reuse of Parcel E-2 and therefore Alternative 2 includes institutional controls and monitoring to ensure protection of human health and the environment. Alternative 2 evaluates complete removal of the Parcel E-2 Landfill, which satisfies the NCP requirement at Title 40 CFR § 300.430(e)(3)(i), but does not include complete removal of all low-level contamination in the Panhandle Area, East Adjacent Area, and Shoreline Area because such an action was not required to satisfy the RAOs. Section 2.8.1 was revised to clarify that for Alternative 2: • The proposed excavation within the Panhandle Area, East Adjacent Area, and Shoreline Area would eliminate exposure to contamination, in accordance with the exposure depths specified in the risk assessments (3 to 4 feet deep in most areas), and would extend deeper in areas with known nonradiological chemical hot spots (up to 16 feet deep). • The excavations would be backfilled with an estimated 400,000 cubic yards of clean imported soil, meeting stringent chemical and radiological acceptance criteria, to establish positive surface drainage in the area and provide stable final slopes. Section 2.8.1 was also revised to clarify, consistent with information presented in the RI/FS Report, that for Alternatives 2, 3, 4, and 5: • A demarcation layer would be installed within the IR Site 01/21 and 02 boundaries to identify remaining radiological hazardous substances at depth, prior to backfilling with clean imported soil. • Institutional controls, consisting of land use and activity restrictions, would be implemented to prevent exposure to potential residual contamination in soil left in place and to preserve the integrity of the soil cap.

Draft Record of Decision for Parcel E-2, Hunters Point Naval Shipyard

Comments by California Department of Toxic Substances Control Remedial Project Manager (Ryan Miya), dated May 15, 2012 *(continued)*

Comment No.	Comment	Response
10.	Section 2.9.2 – Description of Selected Remedy.	
	a. First paragraph. Soil confirmation sampling should be mentioned as a component of the remedial action following excavation and before backfilling with clean soil.	a. The first paragraph of Section 2.9.2 was revised to state (consistent with the RI/FS Report): "*The lateral and vertical extent of hot spots would be refined through pre-excavation characterization to be performed during the RD. Following excavation, confirmation samples would be collected for analysis to verify that residual chemical concentrations were less than the hot spot goals. Upon receipt of acceptable confirmation sampling results, the excavations would be backfilled with clean imported soil in accordance with the final grading plan.*"
	b. First paragraph, last sentence. Please consider revising and/or removing this sentence due to the potential confusion that arises from "hot spot goals" which are not presented in the ROD.	b. The subject sentence was revised to reference Table 4, which presents the hot spot goals. The hot spot goals identified in Table 4 are consistent with information presented in the RI/FS Report (specifically Section 12.1.6 and Table 12-2), and are intended to guide the hot spot removals performed as part of the selected remedy. Please refer to the response to EPA general comment 2 for a description of the relationship between the hot spot goals and remediation goals.
	c. Page 2-39, second paragraph. The study that the Navy conducted to serve as the basis for the statement that most soil in and around the Parcel E-2 Landfill would not liquefy, even during the maximum probable earthquake (MPE), should be referenced in the text and included in the list of references. In addition, please also include some established methods as examples that could be incorporated into the cover design that would help stabilize and control any potential soil layers that might liquefy even during the MPE.	c. The electronic reference (number 56) embedded in the subject paragraph provides the requested information. The Navy wishes to clarify that the Parcel E-2 ROD was streamlined in accordance with the EPA guidance from September 2011 (developed in collaboration with the Navy), and is consistent with similar RODs prepared for other HPNS parcels. The streamlined ROD format summarizes key information and provides electronic references (embedded within the document) to more detailed technical information contained in the administrative record.
	d. Page 2-41 and Figure 14. The technical basis for identification of the areas highlighted in brown (Area Requiring Institutional Controls for Nonradioactive Chemicals in Soil, Soil Gas, and Groundwater) is required. Is this area going to require radiological remediation and subsequent recommendation of radiological free release from the California Department of Public Health? Is the remedy for radiological constituents different in these areas compared to the rest of the parcel?	d. The subject paragraph of Section 2.9.2 was revised to state (consistent with the radiological addendum to the RI/FS Report): "*Figure 14 also identifies the ARIC for radionuclides (green pattern on Figure 14; also referred to as the radiological ARIC), which consists of all of Parcel E-2 except for portions of the East Adjacent Area located outside of the IR Site 01/21 boundary (see Figure 3). Outside of the radiological ARIC, potential radioactive contamination exceeding the remediation goals would be removed, thus these areas would not require institutional controls regarding exposure to radioactivity.*"

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Comments by California Department of Toxic Substances Control Remedial Project Manager (Ryan Miya), dated May 15, 2012 *(continued)*

Comment No.	Comment	Response
10. *(cont.)*	e. General Activity Restrictions subsection. Page 2-44. Prohibition for growing vegetables or fruits in "native soil" for human consumption. DTSC's recommended language for prohibition application that should be added for clarification consistent with the January 2011 Draft Parcel B and G Post - Remedial Action Completion Report (RACR) Risk Management Plan is as follows: "Plants for human consumption may be grown if they are planted in raised beds (above the RACR-approved cover) containing non-native soil. Fruit trees (including nut-bearing trees) may also be planted provided that they are grown in containers with a bottom that prevents the roots from penetrating the native soil."	e. The provision allowing future growth of fruits and vegetables was included for other HPNS parcels with planned residential reuse. However, the Navy does not believe that the requested revision is necessary because, as described in the response to comment 7, the Navy has decided to change the boundary between Parcels E and E-2 so that the Shipyard South Multi-Use District is no longer located in Parcel E-2, thereby ensuring that the planned reuse for Parcel E-2 will be limited to open space.
	f. General Activity Restrictions subsection. Page 2-44. Prohibited use of groundwater throughout HPNS Parcel E-2 should be revised to also include access to groundwater so that it can only occur with approval by the FFA signatories. This will ensure that a work plan is in place if groundwater is to be exposed and ensure protection of human health from contact with contaminated groundwater. The prohibition on use by itself is also not adequate to protect someone from coming into contact with contaminated groundwater.	f. The subject bullet was revised to state: "*Use of or access to groundwater*".
	g. Additional Activity Restrictions Related to Radionuclides at Parcel E-2 subsection. Page 2-45. Radiological management requirements should be revised to include information stating that the transferee will be required to apply for a radiological license or license exemption from the Radiological Health Branch of the California Department of Public Health (CDPH-RHB) since institutional controls will be required for the Parcel E-2 radiological remediation.	g. The Navy understands the expectations of the State of California regarding radiological license or license exemption following property transfer. However, the Navy does not agree that the ROD should be revised to specify this expectation because remediation of Parcel E-2 under CERCLA does not involve radiological licensing (because California laws and regulations regarding possession of radioactive materials do not apply to land possessed by the federal government).

Draft Record of Decision for Parcel E-2, Hunters Point Naval Shipyard		
Comments by California Department of Toxic Substances Control Remedial Project Manager (Ryan Miya), dated May 15, 2012 *(continued)*		
Comment No.	**Comment**	**Response**
11.	Editorial comments: a. Section 2.8.1, first paragraph. Reference to Table 8 on page 37 should either be corrected to page 2-32 or removed from the text. b. Section 2.9.1, first paragraph. The United States Environmental Protection Agency should be included in the list of entities who support selection of Alternative 5. c. Section 2.9.2, last paragraph, page 2-42. Any references to findings of suitability for <u>early</u> transfer should be removed from the document.	a. The subject reference was removed from the text. b. The subject sentence was not revised because it is describing the Navy's evaluation of the two modifying criteria (state and community acceptance). Further, as described in Section 1, the Navy and EPA jointly select the remedy for Parcel E-2. c. The subject sentence in Section 2.9.2 was revised to state: *"In addition to being set forth in the "Covenant(s) to Restrict Use of Property" and Quitclaim Deed(s) as described above, restrictions applied to specified portions of the property will be described in findings of suitability to transfer ~~and findings of suitability for early transfer~~."* This sentence is the only location in the document where the term "early transfer" is used.

Draft Record of Decision for Parcel E-2, Hunters Point Naval Shipyard		
Comments by California Department of Toxic Substances Control Office of Legal Affairs (Robert Elliott), dated May 17, 2012		
Comment No.	**Comment**	**Response**
1.	Page 1-2, 6th bullet – this is too broad since this activity will only deal with a limited area and not all such materials will be disposed. Add "in selected areas" or some other qualifier.	The first two bullets describing the selected remedy were revised as follows: • "*Remove and dispose of contaminated soil in selected areas <u>that contain high concentrations of nonradioactive chemicals, and separate and dispose of materials and soil with radiological contamination found in these areas</u>*" • "*<u>Perform radiological surveys throughout Parcel E-2, involving separation and disposal of materials and soil with radiological contamination found during the surveys</u> ~~Separate and dispose of materials and soil with radiological contamination~~*"
2.	Page 1-3, last sent above Section 1.3 – I believe the NCP indicates, "unlimited use and unrestricted exposure."	Correct. The subject sentence was revised to be consistent with the statement in the NCP.
3.	Page 2-15, Section 2.4, 4th sentence – add "and approved by the FFA signatories" to the end of the sentence.	As described in the response to comment 7 from the DTSC Project Manager, the Navy has decided to change the boundary between Parcels E and E-2 so that the Shipyard South Multi-Use District is no longer located in Parcel E-2, thereby ensuring that the planned reuse for Parcel E-2 will be limited to open space. As a result, Section 2.4 (and other locations in the ROD) was revised to eliminate reference to potential residential use in Parcel E-2, including the subject sentence.
4.	Page 2-16, Section 2.5, 2nd sentence – Please consider replacing the term "subsurface air" with "soil gas (from gas emanating from the landfill)".	The subject sentence was revised to use the term "*soil gas*" instead of "*subsurface air*."
5.	Page 2-17, Section 2.5.1, 1st paragraph, last sentence – what is the relevance of this sentence? I prefer it be deleted.	The subject sentence was deleted as requested. For informational purposes, the subject sentence was included in the Parcel E-2 ROD to be consistent with identical statements in recent RODs for other HPNS parcels.
6.	Page 2-18, last sentence – end the sentence after E-2 and delete the remaining language. Access and use of GW will be restricted so the language is unnecessary.	The subject sentence was revised as requested.
7.	Page 2-26, bullets – why are these items separated and why are there differences in depths? Why wouldn't it just say any depth if above remediation goals?	The RAOs for soil and sediment are consistent with the RI/FS Report and align with the exposure scenarios (including exposure depths) in the human health and ecological risk assessments. Because of the variety of exposure

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7. *(cont.)*	*(see above)*	scenarios triggering a potential risk (and prompting remedial action), the Navy believes that this level of detail is necessary for the ROD.
8.	Page 2-26 and 2-27– why is the phrase "or minimize" used? I suggest it be deleted. The goal of the remedy is to prevent exposure.	As requested, the phrase "*or minimize*" was deleted from most RAOs pertaining to direct exposure to contaminated media. However, consistent with text from the RI/FS Report, the phrase was retained for RAOs pertaining to construction worker exposure to A-aquifer groundwater.
9.	Page 2-26, Groundwater RAOs – why is the breakdown necessary? Instead, please revise to instead state: "Prevent exposure to and migration of contaminated groundwater at concentrations greater than remediation goals".	Consistent with text from the RI/FS Report, the separate RAOs are based on the Navy's evaluation of chemical-specific ARARs for B-aquifer groundwater. Specifically, Appendix N (page N-21) of the Final RI/FS Report determined that, for containment remedies, drinking water MCLs are not ARARs for B-aquifer groundwater underlying Parcel E-2, but are ARARs for B-aquifer groundwater downgradient of the point of compliance. The groundwater point of compliance is defined, in accordance with the NCP and Cal. Code Regs., tit. 22 § 66264.95, at the downgradient edge of the waste management unit. Consistent with information presented in Appendix N of the RI/FS Report, the downgradient edge of the waste management unit is the Parcel E-2 boundary.
10.	Page 2-36, Section 2.9.1, 1st paragraph, last sentence – this sentence does not seem consistent with the statements made in Sections 2.4 and 2.7 regarding the demonstration of suitability.	As described in the response to comment 3, the Navy has decided to change the boundary between Parcels E and E-2 so that the Shipyard South Multi-Use District is no longer located in Parcel E-2, thereby ensuring that the planned reuse for Parcel E-2 will be limited to open space. As a result, Sections 2.4 and 2.7 (and other locations in the ROD) were revised to eliminate reference to potential residential use in the Shipyard South Multi-Use District (and the conditions for regulatory approval of such uses).
11.	Page 2-42, 4th paragraph, 1st sentence – add "and" between "Navy" and "reviewed" and end the sentence after the first "FFA signatories." If there is a Risk Management Plan (RMP), it will not "implement" land use and activity restrictions, which are implemented by the deed and covenant. The RMP will only be a document if used that describes conditions and protocols that shall be used to conduct what would otherwise be restricted activities.	The subject sentence was revised as follows: "*The land use and activity restrictions in the "Covenant(s) to Restrict Use of Property" and Quitclaim Deed(s) shall be <u>further</u> defined in the land use control remedial design (LUC RD) report that would be prepared by the Navy <u>and</u>~~,~~ reviewed and approved by the other FFA signatories<u>.</u> ~~and, if deemed necessary, implemented through the Parcel E-2~~<u>A</u> risk management plan (RMP) <u>may</u> ~~to~~ be prepared by the CCSF and approved by the ~~Navy, other~~ FFA signatories ~~and the California Department of Public Health (CDPH)~~ <u>that may set forth certain requirements and protocols used to conduct restricted activities</u>.*"

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Comment No.	Comment	Response
12.	Page 2-42, last paragraph regarding UCSF property – if contamination remains in place at this property that does not allow for unrestricted use then a Covenant to Restrict Use of Property will be required. Therefore, the Navy will be required to negotiate with UCSF to that end and that requirement should be included here.	The Navy has previously communicated with UCSF regarding the proposed remedial action at Parcel E-2, including the small portion of the Parcel E-2 Landfill located on UCSF property. The Navy will work with UCSF and DTSC to establish appropriate legal mechanisms that ensure the protection of human health and the integrity of the selected remedy.
13.	Page 2-43, Land Use Restrictions, last line – it is not my understanding that the RMP (if necessary) will control land use. The restrictions will be in the deed and covenant.	The subject sentence refers to the approval process for removing the specified land use restrictions, and clarifies that approval would need to comply with the "*Covenant(s) to Restrict Use of the Property, Quitclaim Deed(s), LUC RD report, and Parcel E-2 RMP, if applicable*."
14.	Page 2-45, Additional Activity Restrictions Related to Radionuclides at Parcel E-2, 2nd line – explain the phrase "(in most areas)" in a little more detail. If it is just in the wetlands area then state that here.	The subject parenthetical notation was revised to state: "*in ~~most~~ all areas outside of the future wetlands*".
15.	Attachment 4, Page 35, California Civil Code – I would prefer that it just say "1471" and in the comments it can just say the substantive requirements or provisions.	The subject citation was revised as requested.
16.	Attachment 4, Page 35, below section on 1471 – add the section title "California Health and Safety Code" above the 25202.5 section.	A new header row (titled "California Health and Safety Code") was added as requested.
17.	Attachment 4, Page 37, Cal. Code Regs. Section – please just cite section 67391.1 and the comment can remain the same.	The subject citation was revised as requested, and the corresponding comment was revised to revised to be consistent with the Parcel C ROD.

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Comments by California Department of Fish and Game (Charlie Huang and Tami Nakahara), dated May 14, 2012		
Comment #	**Comment**	**Response**
Introduction		
--	The California Department of Fish and Game, Office of Spill Prevention and Response (DFG-OSPR) has completed its review of the subject document, received on September 7, 2011. The comments that follow are provided as part of our role as a natural resource Trustee for the State of California's fish and wildlife, and their habitats. DFG-OSPR's review focused on the ecological risk assessment and biological resource related sections of the document. The DFG is the State's Trustee for fish and wildlife resources pursuant to Fish and Game Code Section 711.7. The DFG is also designated as a Trustee for natural resources pursuant to Comprehensive Environmental Response, Compensation, and Liability Act Section 107 (f)(2)(B). Hunters Point Naval Shipyard (HPNS), located in southeast San Francisco on a peninsula that extends east into San Francisco Bay, was identified for closure during the Base Realignment and Closure process of 1991. The shipyard is approximately 936 acres in size, 443 acres of which are on land with the remaining acreage under water (Tetra Tech, 2000). HPNS is bounded on the north and east by San Francisco Bay and on the south and west by the Hunters Point district of San Francisco, which consists of public and private housing and commercial & industrial buildings. The north and east shores of HPNS are developed for ship repair with dry docks and berths; there are no shipping facilities on the southwest shore. HPNS was operated as a commercial dry dock facility from 1869 until 1939. In 1940, the Navy obtained ownership of the shipyard for ship building, repair, and maintenance activities. Activities shifted from ship repair to submarine servicing and testing after World War II. HPNS was deactivated in 1974 and remained relatively unused until 1976. Between 1976 and 1986, the Navy leased most of the property to a privately-owned ship repair firm. In 1986, the Navy again occupied the shipyard and began a program to investigate and clean up contamination resulting from past activities (Engineering/Remediation Resources, 2009).	The Navy wishes to clarify that the Draft ROD for Parcel E-2 was submitted on March 14, 2012. The Draft ROD included a responsiveness summary to comments received on the Proposed Plan for Parcel E-2 (which was submitted on September 6, 2011). The Navy's responses to CDFG comments on the responsiveness summary are provided on the following pages. The Navy wishes to clarify that the Proposed Plan and Draft ROD summarize previously published information on Parcel E-2, and all of CDFG's comments pertain to information previously published in the Final RI/FS Report for Parcel E-2 (ERRG and Shaw, 2011). As acknowledged in this comment, CDFG provided comments on the Draft and Draft Final versions of the RI/FS Report for Parcel E-2. The Navy responded to all CDFG comments, and the document was finalized in May 2011, in accordance with Section 7.9 of the HPNS FFA (Navy, DTSC, and Water Board, 1991). The Navy has worked with the FFA signatories (EPA, DTSC, and Water Board) and other interested regulatory agencies in preparing the RI/FS Report and Proposed Plan, and will continue this collaborative effort to finalize the ROD for Parcel E-2. The Navy's efforts include preparing written responses to all comments received on its CERCLA documentation for Parcel E-2, and holding meetings to discuss and attempt to resolve technical and regulatory issues related to the CERCLA process for Parcel E-2. However, the Navy wishes to emphasize its obligation to complete the CERCLA documentation for Parcel E-2 in accordance with the schedule developed per the FFA. As described in Section 7.10 of the FFA, there are specific technical requirements for any request by an FFA signatory (which, for the State of California, includes only DTSC and the Water Board) to modify a final primary document (such as the RI/FS Report for Parcel E-2), or otherwise request additional work for sites addressed in a final primary document. The Navy is not aware of any such requests from an FFA signatory endorsing and requesting modifications of the RI/FS based upon the technical concerns identified by CDFG during their review of the Draft ROD. Accordingly, the Navy does not agree that CDFG's technical concerns, as identified in these

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Comments by California Department of Fish and Game (Charlie Huang and Tami Nakahara), dated May 14, 2012 *(continued)*

Comment #	Comment	Response
Introduction (continued)		
--	HPNS is divided into six parcels (A through F). Parcel E-2 is about 48 acres in size and is located in the southwestern part of HPS, adjacent to San Francisco Bay. It includes former portions of Parcel E, including Installation Restoration (IR)-01/21, the Panhandle Area, a small area of IR-02 Northwest, and the area east of IR-01/21 that does not have an IR site designation. Habitats in Parcel E-2 include ruderal, non-native annual grassland, intertidal and saline emergent wetlands, and a seasonal freshwater wetland. Base habitats that include upland, tidal wetlands, and offshore habitats are used by many wildlife species representing different trophic levels. The planned reuse for Parcel E-2 is open space, except for a small area in the East Adjacent Area, which is designated as part of the Shipyard South Multi-Use District. In a memorandum dated July 26, 1999, DFG-OSPR provided comments on the Draft Validation Study Report, Parcel E, HPNS (Chernoff, 1999). DFG-OSPR commented on the Draft Wetlands Mitigation and Monitoring Plan, Metal Debris Reef and Metal Slag Areas Parcels E and E-2, HPNS (Gray, 2007a) and on the Draft Parcel E-2 Remedial Investigation/Feasibility Study (Gray and Huang, 2007). DFG-OSPR provided Applicable or Relevant and Appropriate Requirements (ARARs) for the Parcel E-2 Feasibility Study in a memorandum dated September 7, 2007 (Gray, 2007b). DFG-OSPR commented on the Draft Final Wetlands Mitigation and Monitoring Plan, Metal Debris Reef and Metal Slag Areas Parcels B, E and E-2 (Huang and Nakahara, 2009) and on the Draft Final Remedial Investigation/Feasibility Study for Parcel E-2 (Nakahara et al, 2009). DFG-OSPR also commented on the Final Wetlands Mitigation and Monitoring Plan, Metal Debris Reef and Metal Slag Areas Parcels B, E and E-2 (Nakahara, 2010). DFG- OSPR provided ARARs for the Time-Critical Removal Action (TCRA) at the Experimental Ship Shielding Range (ESSR), Parcel E-2 and commented on the Proposed Plan (PP) for Parcel E-2, and the Draft Action Memorandum for the TCRA ESSR, Parcel E-2 in memoranda dated July 27, 2011 (Nakahara, 2011), November 18, 2011 (Huang and Nakahara, 2011), and February 22, 2012 (Huang and Nakahara, 2012), respectively.	comments, require reconsideration under the FFA of previous conclusions presented in the Final RI/FS Report and summarized in the Draft ROD. However, because many of CDFG's technical concerns pertain to long-term maintenance and monitoring, the Navy wishes to clarify that, as required by Cal. Code Regs., tit. 27 § 20950(a) and tit. 22 § 66264.117(b)(2)(B), it will maintain and monitor the remedy for as long as the hazardous substances pose a threat to water quality and as long as necessary to protect human health and the environment. As stated in previous responses to CDFG comments on the RI/FS Report and Proposed Plan, the Navy will prepare a post-closure operation and maintenance plan (to be prepared in conjunction with the RD) that will identify the inspection and maintenance actions. The post-closure operation and maintenance plan will be submitted for review and approval by EPA, DTSC and the Water Board in conjunction with the RD. In addition, CDFG's comments on the RI/FS Report, Proposed Plan, and Draft ROD request that the Navy incorporate a biotic barrier consisting of cobbles. CDFG's comments imply that a final cover without a biotic barrier consisting of cobbles would require significant long-term maintenance (to repair damage from burrowing animals). As detailed in the following responses (as well as in previous responses to CDFG comments on the RI/FS Report and Proposed Plan), the CDFG has not presented sufficient technical information to support its assertions. Further, CDFG's comments fail to acknowledge the potentially significant geotechnical issues that could arise by incorporating a cobble layer (up to 3 feet thick) with an overlying vegetative layer (up to 2 feet thick). The Navy finds that a cobble layer is unnecessary and that incorporation of such a layer could potentially affect the stability and long-term performance of the final cover.

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Comments by California Department of Fish and Game (Charlie Huang and Tami Nakahara), dated May 14, 2012		
Comment #	**Comment**	**Response**
Introduction (continued)		
--	On May 8, 2012, DFG-OSPR, the Department of Toxic Substances Control (DTSC), and the Navy attended a site visit to Parcel E and E-2. Immediately following the site visit, a meeting was held to discuss DFG-OSPR's concerns on the Parcel E Draft Final Feasibility Study, Parcel E-2 Draft TCRA ESSR Action Memorandum, and the Parcel E-2 Draft Record of Decision (ROD). The Navy, DFG-OSPR, and DTSC are currently working on a path forward regarding DFG- OSPR's concerns on DFG ARARs and biotic barriers.	*(see response above)*
Comments on Navy Responses to General Comments on Proposed Plan for Parcel E-2		
1.	The Navy's response [to General Comment 1 on the Proposed Plan] is acceptable.	Comment acknowledged.
2.	DFG-OSPR commented that we are in general concurrence with remedial alternative 4 or 5 with inclusion of at least one the following recommendations: incorporation of an adequate biotic barrier under the soil cover over all of Parcel E-2 except the wetlands, incorporation of a soil cover of at least four feet in depth over all of Parcel E-2, or the addition of other methods of post-closure monitoring, such as soil and surface water monitoring for contaminants. The Navy responded, "The planned activities, which include surface water monitoring, will be adequate to ensure the protection of human health and the environment. Please refer to the response to specific comment 2 regarding the Navy's position on CDFG's request for an additional biotic barrier and thicker soil cover." Please see DFG-OSPR's responses below on the PP Specific Comment 2a1-5 and 2b1 regarding biotic barriers and damage to geomembranes from burrowing animals.	Please refer to the responses to CDFG comment 2 below (on the Navy's Responses to Specific Comments on the Proposed Plan for Parcel E-2).

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Comments by California Department of Fish and Game (Charlie Huang and Tami Nakahara), dated May 14, 2012 *(continued)*

Comment No.	Comment	Response
Comments on Navy Responses to Specific Comments on Proposed Plan for Parcel E-2		
1.	The Navy's response [to Specific Comment 1 on the Proposed Plan] is acceptable.	Comment acknowledged.
2.	Page 17, Section "Summary of the Preferred Alternative". The PP states, "The liner will minimize water seeping into the contaminated material, control animals from burrowing under the cover, and serve as a visual marker for the bottom of the cover."	
	a. DFG-OSPR commented that geomembrane liners are not designed to function as biotic barriers (Huang and Nakahara, 2011). The Navy responded, in regards to the geocomposite drainage layer that is placed on top of the geomembrane, "*This layer would provide a drainage path for water infiltrating through the vegetative layer and, consistent with its use at other landfill sites, would also deter burrowing animals*." Geosynthetic caps, consisting of a geocomposite drainage layer (e.g., geonet) and a geomembrane, are designed to reduce stormwater infiltration into the contaminated material. Geosynthetic caps are not designed to function as biotic barriers to "*control animals from burrowing under the cover*" and exposing contaminants. There is various information in the literature that supports this view. Listed below are a few examples:	a. The cited statement in the Responsiveness Summary is consistent with more detailed information presented in Section 11.5.1.2 of the Final RI/FS Report, which identifies several other landfills in the San Francisco Bay area where the selected CERCLA remedies included geocomposite drainage material to both provide a drainage path for infiltration and to deter burrowing animals. The Navy continues to assert its belief, as stated in previous responses to CDFG's comments on the Proposed Plan, that the information in the RI/FS Report adequately demonstrates that the proposed cover, which will be regularly inspected and maintained (with animal control measures implemented as necessary), will be protective of human health and the environment. In addition, the Navy wishes to clarify the following points regarding the additional information cited by CDFG:
	1. According to Dr. John Scheirs, a polymer technologist with ExcelPlas Geomembrane Testing Services, "*Burrowing animals are a real threat to geomembranes. There are a number of documented cases of animals breaching the liners by gnawing or cutting. These include: rodents gnawing through liners; pecking damage by bird beaks; [and] gophers (prairie dogs) burrowing through pond liners…*" (Scheirs, 2009). Furthermore, he states, "*The potential for penetration into the geomembrane by burrowing animals is far greater for unconsolidated, fine-grained sand/soils than for gravel and rock. A biotic barrier (BB) can therefore be installed to reduce potential intrusion by burrowing animals (for*	1. The Navy has reviewed the subject document and finds that CDFG staff has presented the quoted statements out of context. Specifically, the quoted statements are included in a section titled "*Failure Modes of Exposed Geomembranes*", indicating that the noted performance issues pertain to geomembranes exposed directly to the environment. As described in the response to CDFG specific comment 2 on the Proposed Plan, covered geomembranes are used in all landfill liner and cover applications. Further, the subject document is a 600-page technical reference manual that covers a variety of topics related to

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Comments by California Department of Fish and Game (Charlie Huang and Tami Nakahara), dated May 14, 2012 *(continued)*

Comment No.	Comment	Response
Comments on Navy Responses to Specific Comments on Proposed Plan for Parcel E-2 (continued)		
2. (*cont.*)	*instance into landfill liners). A BB of 70 cm consisting of cobbles overlain with 30 cm of gravel can deter burrowing animals*" (Scheirs, 2009).	landfill liners, and is not a focused study on the performance of existing landfill covers. In addition, the author (Dr. Scheirs) draws upon experience from landfills in other countries (most notably Australia) where site conditions may differ from those in the United States. For example, the author cites "*crab damage on Nauru island*" and "*kangaroo paws*" as documented cases of animals damaging exposed geomembranes. CDFG excluded these statements from their quoted excerpt, and the Navy finds CDFG's quoted statement potentially misleading because the unusual examples excluded from CDFG's quoted statement immediately precede and follow the examples cited by CDFG. For these reasons, the Navy does not believe that the cited reference provides pertinent information on the potential for burrowing animals to affect the performance of the covered geomembrane proposed for Parcel E-2.
	2. The U.S. National Research Council states, "*Where burrowing animals might damage the geomembrane/low-hydraulic conductivity soil layer, a biotic barrier layer of large-sized aggregate will be needed above it*" (National Research Council [U.S.], 1997).	2. The Navy has reviewed the subject document and finds that CDFG staff has not properly identified the context of the cited study. Specifically, the document summarizes the findings from a 1-day workshop on engineered barriers that might be used for "*remediation of radioactive and mixed waste located in the U.S. Department of Energy (DOE) nuclear weapons complex*". The Navy does not believe that the low level radioactive material potentially present at Parcel E-2 is comparable to wastes located in the Department of Energy's nuclear weapons complex. For this reason, the Navy does not believe that the cited reference provides pertinent information on the potential for burrowing animals to affect the performance of the covered geomembrane proposed for Parcel E-2.

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Comment No.	Comment	Response
Comments on Navy Responses to Specific Comments on Proposed Plan for Parcel E-2 (continued)		
2. (*cont.*)	3. The U.S. Environmental Protection Agency (USEPA) has also discussed the use of biotic barriers in landfill caps as a method to protect geomembranes from damage by burrowing animals in several of their publications (USEPA, 1989a; USEPA, 1989b; USEPA, 1992; USEPA, 1993). According to the USEPA, "*A Biotic barrier is used in the cap of a waste containment system to prevent small burrowing animals and plant roots from penetrating the drainage layer or the low permeability layer*" (USEPA, 1992). 4. The Post-Closure Operation and Maintenance Plan for landfills at Ford Ord, California states, "*Another mechanism for damaging the geomembrane is burrowing animals, which are common on the landfill. The problems burrowing animals pose are twofold: Burrows destabilize the vegetation layer which is then exposed to erosion, [and] Burrowing animals with sharp claws could directly damage the geomembrane as they excavate their burrows. Although there has been only one case documented of geomembrane damage caused by burrowing animals (Steiniger, 1968), the potential for damage to the geomembrane still exists and should be monitored"* (IT Corporation, 2000). The document goes on to recommend an examination and repair procedure for geomembranes exposed in deep burrows. This procedure involves excavating and exposing geomembranes by hand, examining the geomembrane for damage, repairing the affected area by welding on a high-density polyethylene patch, testing the patch for leaks, backfilling, compacting, grading, and reseeding the affected area.	3. The Navy has reviewed the subject document and finds that it focuses on construction quality assurance and quality control for construction of landfill covers. The design-related elements of the 1992 guidance are abbreviated and do not compare with more detailed information presented in a 1991 EPA guidance document titled "*Design and Construction of RCRA/CERCLA Final Covers*" (EPA, 1991). Specifically, the 1991 EPA guidance identifies a biotic barrier consisting of cobbles as an optional layer that "*may stop the penetration of some deep-rooted plants and the invasion of burrowing animals*." The 1991 EPA guidance also states that "*[M]ost research on biotic barriers has been done in, and is applicable to, arid areas*." This information indicates that biotic barriers are not typical for landfill covers in temperate climates such as San Francisco. Because of its limited scope, the Navy does not believe that the 1992 guidance cited by CDFG provides pertinent information on the potential for burrowing animals to affect the performance of the covered geomembrane proposed for Parcel E-2. 4. The landfill covers at Fort Ord Operable Unit 2, which were constructed at five separate areas, are regularly inspected and maintained in accordance with the cited post-closure operation and maintenance plan. Four of the landfill covers were completed in 1998 and the fifth landfill cover was completed in 2002. As documented in the five-year review reports from 2002 and 2007 (Army, 2002 and 2007), the Operable Unit 2 landfill covers are functioning as designed and no performance issues related to the geomembrane liners were noted. In addition, operation and maintenance reports for the Operable Unit 2 landfill covers have not identified any instance when the inspection of animal burrows identified any damage to the geomembrane liners. For these reasons, the Navy does not believe that the cited reference provides pertinent information on the potential for burrowing animals to affect the performance of the covered geomembrane proposed for Parcel E-2.

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Comments by California Department of Fish and Game (Charlie Huang and Tami Nakahara), dated May 14, 2012 *(continued)*

Comment No.	Comment	Response
Comments on Navy Responses to Specific Comments on Proposed Plan for Parcel E-2 (continued)		
2. (*cont.*)	5. The Navy also published a document entitled "Installation Restoration: Navy Landfills and EPA Cover Guidance", which recommends the use of biotic barriers to protect the geomembrane from damage by burrowing animals (Karr et. al., 1992). According to the Navy's publication, "*The biotic barrier consists of a gravel and rock layer designed to prevent the intrusion of burrowing animals. This protection is primarily necessary around the cap but, in some cases, may also be needed at the bottom of the liner. Although animals cannot generally penetrate the flexible membrane cap (FMC), they can widen an existing hole or tear through wrinkled material. The proposed 1-meter thickness should effectively prevent penetration by all but the smallest insects*" (Karr et. al., 1992).	5. The Navy wishes to clarify that the subject document, which was referenced in Section 11.5.1.2 of the RI/FS Report, does not "recommend" the use of biotic barriers. Rather, the subject document describes required and optional layers for landfill covers, as specified in 1989 EPA guidance titled "*Technical Guidance Document: Final Covers on Hazardous Waste Landfills and Surface Impoundments.*" As identified in Figure 2 of the subject document (and page 33 of the 1989 EPA guidance), biotic barriers are optional layers. Also, previously cited EPA 1991 guidance states that "*[M]ost research on biotic barriers has been done in, and is applicable to, arid areas*." In contrast, the subject document states that "*Most Navy landfills are located in coastal areas which contributes to increased penetration by water subsurficially, or in areas of high precipitation, creating high infiltration and runoff.*" Further, the subject document evaluated conditions at 229 Navy landfills and identified the potential generation of landfill leachate and landfill gas as the primary performance issues requiring careful evaluation and further study. For these reasons, the Navy believes that the subject document supports its position, as stated in Section 11.5.1.2 of the RI/FS Report, that the potential for burrowing animals to penetrate a geomembrane is low. In summary, the Navy finds that CDFG has presented the additional information provided in this comment out of context. The Navy continues to assert its belief, as stated in previous responses to CDFG's comments on the Proposed Plan, that CDFG has not presented sufficient technical information to support its assertion that burrowing animals would cause significant damage to the geomembrane liner over time, or cause unacceptable exposure of contaminated waste. CDFG repeated comments on this topic imply a direct connection between the presence of burrowing animals at any landfill site and corresponding damage to an underlying geomembrane liner that is not supported by adequate evidence.

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Comments by California Department of Fish and Game (Charlie Huang and Tami Nakahara), dated May 14, 2012 *(continued)*

Comment No.	Comment	Response
Comments on Navy Responses to Specific Comments on Proposed Plan for Parcel E-2 (continued)		
2. (*cont.*)	*(see above)*	In contrast, the Navy has identified two studies, summarized briefly below, that have evaluated the performance of landfill covers nationwide and provide more pertinent information to evaluate the potential significance of burrowing animals at existing landfill covers. Neither of these studies identified burrowing animals as a significant performance problem for geomembrane liners. *Assessment of the Performance of Engineered Waste Containment Barriers* (National Research Council, 2007): This study, prepared at the request of numerous federal agencies (EPA, NRC, NSF, and DOE), assessed the effectiveness of existing engineered barriers over the long term. The report concluded that "*Based on as much as 20 years of observations, the committee concluded that most engineered waste containment barrier systems that have been designed, constructed, operated, and maintained in accordance with current statutory regulations and requirements have thus far provided environmental protection at or above specified levels.*" The report did not identify burrowing animals as a significant performance problem for geomembrane liners. *Assessment and Recommendations for Improving the Performance of Waste Containment Systems* (Bonaparte et al., 2002): This study, prepared in consultation with EPA, included a nationwide review of landfill performance data, interviews with regulatory personnel, and evaluation of existing landfills with performance problems. Problems identified for landfill covers consisted of cover system slope failure during construction, cover system slope failure after rainfall or a thaw, and soil cover damage due to earthquakes. The study noted that "*the number of facilities with identified problems is relatively small in comparison to the total number of modern facilities nationwide.*" Overall, the study concluded that "*environmentally safe and effective containment of waste is attainable.*" The report did not provide any specific examples of locations where geomembrane liners were damaged by burrowing animals.

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Comment No.	Comment	Response
Comments on Navy Responses to Specific Comments on Proposed Plan for Parcel E-2 (continued)		
2. (*cont.*)	Although other landfill sites have chosen not to install a biotic barrier, this does not mean that their geocomposite drainage layer would prevent burrowing animals from damaging the geomembrane in these landfill caps. Based on the information in the literature, DFG-OSPR requests the Navy remove any references to the geomembrane, geocomposite drainage layer, or geocomposite cap that state these components will "*control animals from burrowing under the cover*" or imply that these components will perform the function of a biotic barrier. DFG-OSPR also requests the Navy state in the ROD that they will implement appropriate procedures, approved by the regulatory agencies, for detecting and repairing damage to the geomembrane from burrowing animals as part of the Parcel E-2 post-closure operation and maintenance plan. The cost of detecting and repairing damage to the geomembrane from burrowing animals in perpetuity will need to be factored into the costs of the selected remedy.	Overall, the Navy finds that the technical concerns identified by CDFG are not supported by sufficient evidence. Specifically, CDFG has not presented any significant new information or demonstrated that their primary recommendation following review of the RI/FS Report and Proposed Plan (to include a biotic barrier consisting of cobbles) is necessary to protect human health or the environment. Accordingly, the Navy does not agree that CDFG's technical concerns, as identified in these comments, require reconsideration of previous conclusions presented in the Final RI/FS Report and summarized in the Draft ROD. The language in the Draft ROD, which is consistent with the Final RI/FS Report, will not be revised in response to CDFG's comment. As stated in previous responses to CDFG's comments on the RI/FS Report and Proposed Plan, the post-closure operation and maintenance plan (to be prepared in conjunction with the RD) will identify the inspection and maintenance actions, including those related to animal burrows, and will be submitted for review and approval by EPA, DTSC and the Water Board in conjunction with the RD. The Navy also wishes to clarify that the various components of the selected remedy will require long-term maintenance and cost for this effort was included in the Final RI/FS Report. Potential changes to the long-term monitoring and maintenance program, to be considered as part of the regulatory review process of the postclosure maintenance plan, will not significantly affect the overall costs of the remedial alternatives beyond the accuracy required by EPA RI/FS guidance (+50/-30 percent) (EPA, 1988). CDFG's comments imply that a final cover without a biotic barrier consisting of cobbles would require significant long-term maintenance (to repair damage from burrowing animals). As described previously, the CDFG has not presented sufficient technical information to support its assertions. Further, CDFG's comments fail to acknowledge the potentially significant geotechnical issues that could arise by incorporating a cobble layer (up to 3 feet thick) with an overlying vegetative layer (up to 2 feet thick). The Navy finds that a cobble layer is unnecessary and that incorporation of such a layer could potentially affect the stability and long-term performance of the final cover.

Draft Record of Decision for Parcel E-2, Hunters Point Naval Shipyard

Comments by California Department of Fish and Game (Charlie Huang and Tami Nakahara), dated May 14, 2012 *(continued)*

Comment No.	Comment	Response
Comments on Navy Responses to Specific Comments on Proposed Plan for Parcel E-2 (continued)		
2. *(cont.)*	b. DFG-OSPR commented on the Draft Final Remedial Investigation/Feasibility Study Report for Parcel E-2 and asked the Navy to explain why a biotic barrier was not incorporated into the design of the landfill cover since gophers can dig up to six feet deep, which exceeds the depth of the proposed 2-foot soil cover (Nakahara et al., 2009). 1. The Navy responded, "*The Navy believes that the demonstrated performance of the cover at Site 1 at the former NAS* [Naval Air Station] *Moffett Field is useful in evaluating the efficacy of the proposed cover at Parcel E-2.*" As DFG-OSPR previously commented, the Site 1 landfill cap has been in place since 1998, which is a relatively short period in the life of a landfill that is supposed to function and be maintained in perpetuity (Huang and Nakahara, 2011). According to the County inspection reports for Moffett Field Site 1 Landfill, there are issues with gophers burrowing into the landfill cap. In March 2009, the County reported, "*Burrowing rodent populations (pocket gophers) have nearly doubled and are noticeably more active than during the inspection 3 months ago. Provisions must be approved for a new control method other than backfilling and compacting the soil back into the area of the burrows. The only effective control will involve active eradication of the gophers*" (Insight Environmental, Engineering and Construction, Inc. [Insight], 2009). In December 2009, the County reported, "*Burrowing rodent activity is still a concern. In response there has been an aggressive program of trapping at Site 1. A few gophers have been trapped so far, but the full effectiveness of this strategy is not yet apparent*" (Insight, 2009). In November 2010, the County reported, "*Gopher control activity control measure of using traps has met with no success to date. Of the 75 traps in use since the last inspection, no gophers have been reported trapped*" (Oneida Total Integrated Enterprises	b. The Navy continues to assert their belief, as stated in previous responses to CDFG's comments on the RI/FS Report and Proposed Plan, that the information in the RI/FS Report for Parcel E-2 adequately demonstrates that the proposed covers, which will be regularly inspected and maintained (with animal control measures implemented as necessary), will be protective of human health and the environment. Section 12.2.3.10 of the Final RI/FS Report specifies the preference for low-impact measures (such as raptor perches), as compared to higher impact control measures (such as poisons), to control burrowing animals at Parcel E-2. The Navy also continues to assert its belief, as stated in previous responses to CDFG's comments on the Proposed Plan, that CDFG has not presented sufficient technical information to support its assertion that burrowing animals would cause significant damage to the geomembrane liner over time, or cause unacceptable exposure of contaminated waste. As previously stated, CDFG repeated comments on this topic imply a direct connection between the presence of burrowing animals at any landfill site and corresponding damage to an underlying geomembrane liner that is not supported by adequate evidence. CDFG has not presented any significant new information or demonstrated that their primary recommendation (to include a biotic barrier consisting of cobbles) is necessary to protect human health or the environment. Accordingly, the Navy does not agree that CDFG's technical concerns, as identified in these comments, require reconsideration of previous conclusions presented in the Final RI/FS Report and summarized in the Draft ROD. The language in the Draft ROD, which is consistent with the Final RI/FS Report, will not be revised in response to CDFG's comment. However, as stated previously, the post-closure operation and maintenance plan (to be prepared in conjunction with the RD) will identify the inspection and maintenance actions, including those related to animal burrows, and will be submitted for review and approval by EPA, DTSC and the Water Board in conjunction with the RD.

Draft Record of Decision for Parcel E-2, Hunters Point Naval Shipyard

Comments by California Department of Fish and Game (Charlie Huang and Tami Nakahara), dated May 14, 2012 *(continued)*

Comment No.	Comment	Response
Comments on Navy Responses to Specific Comments on Proposed Plan for Parcel E-2 (continued)		
2. (*cont.*)	[OTIE], 2011). Based on the ineffectiveness of the trapping at Site 1, the Navy is now evaluating other alternatives, such as the use of Fumitoxin (OTIE, 2011). During the May 8, 2012 site visit to Parcel E and E-2 with the Navy and the Department of Toxic Substances Control, DFG-OSPR noticed numerous gopher burrows on both sites. Based on the "*demonstrated performance of the cover at Site 1*" which the Navy is using to evaluate the efficacy of the proposed cover at Parcel E- 2, there is the potential for gopher burrowing to be an issue at Parcel E-2. Backfilling and compacting the soil back into the burrows, as well as trapping, do not appear to be effective methods of controlling gophers at Site 1. Raptor perches were also installed at Site 1, but these also do not appear to be effective. DFG-OSPR does not support the use of pesticides for landfill maintenance because of their ability to kill non-target species, including State and Federal special status species. Burrowing Owls, a State species of special concern and species protected by the Federal Migratory Bird Treaty, have been observed at HPNS (TtFW, 2004). Please note DFG-OSPR will not approve the use of pesticides, such as Fumitoxin, in areas where there are State special status species such as Burrowing Owls. If the Navy has take of State and Federal special status species during landfill maintenance activities, they may be in violation of State and Federal ARARs. Therefore, the Navy may need to implement alternative methods of gopher control at Parcel E-2, than what was used at Site 1. The cost for implementing animal control measures and detecting and repairing damage to the geomembrane in perpetuity will need to be factored into the costs of the selected remedy. The Navy also responded to DFG-OSPR's comment regarding the lack of a biotic barrier by referring to a White Paper on the Geomembrane Lifetime Prediction published by the Geosynthetic Institute (Koerner, et al., 2011). This paper only discusses	*(see response on pages 30 through 36)*

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Comments by California Department of Fish and Game (Charlie Huang and Tami Nakahara), dated May 14, 2012 *(continued)*		
Comment No.	**Comment**	**Response**
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2. (*cont.*)	degradation mechanisms such as oxidation, chemical, and compressive stress. This paper does not discuss the effects of burrowing animals on geomembranes. In the June 2009 Geosynthetic Institute (GSI) Newsletter/Report Question and Answer column, a reader submitted the following questions: "*A landfill cap design calls for a 2-foot thick vegetative layer and soil cover, consisting of topsoil and noncalcareous quarry screenings, overlying drainage composite and 40-mil VLDPE. There is a concern that the cap geosynthetics may be susceptible to damage and penetration by burrowing animals into the underlying waste. Are there any documented instances of this taking place at landfill caps in North America? Does a cap design using PE geosynthetics need to consider this possibility and, if so, would you suggest any design guidance offering preventive measures?*" (Geosynthetic Institute, 2009). The Geosynthetic Institute responded, "*You ask a common question which I will try to answer in several ways.*" 1. "*The only known situation of an animal clawing its way through a geomembrane that I know of was on a final cover where the animal was trapped beneath the geomembrane as it entered into its anchor trench. So as to escape the animal scratched the underside until it produced a hole of about 150 mm in diameter*." 2. "*I am told that there is an old report by a German organization which concluded that the hardness of the animal's teeth versus the geomembrane type is critical*." 3. "*One way of preventing burrowing animals from getting to the geomembrane is to provide a 'biobarrier' in the protection soil above it. This would consist of a layer of stones/rocks of sufficient size to prevent/discourage the animal from digging through it. Stone size and layer thickness are obviously important considerations*" (Geosynthetic Institute, 2009).	*(see response on pages 30 through 36)*

Draft Record of Decision for Parcel E-2, Hunters Point Naval Shipyard

Comments by California Department of Fish and Game (Charlie Huang and Tami Nakahara), dated May 14, 2012 *(continued)*

Comment No.	Comment	Response
Comments on Navy Responses to Specific Comments on Proposed Plan for Parcel E-2 (continued)		
2. (*cont.)*	Due to the potential for burrowing animals to damage the geomembrane, DFG-OSPR does not agree with the Navy's claim that "*placement of a high-density plastic liner under at least 2 feet of clean soil will prevent exposure to remaining contamination*" (page 17 of Parcel E-2 PP). Please also see DFG-OSPR's response above on the PP Specific Comment 2a1-5 on the Proposed Plan regarding biotic barriers and damage to geomembranes from burrowing animals. 2. The Navy responded, "*Further, the Navy does not believe that CDFG has presented sufficient technical information to support its assertion that burrowing animals would cause significant damage to the landfill cover over time*." Please see DFG-OSPR's responses above on the PP Specific Comment 2a1-5 and 2b regarding biotic barriers and damage to geomembranes from burrowing animals. 3. DFG-OSPR commented that a rodent's incisors continuously grow throughout its life so it must gnaw on objects to keep its incisors worn down. As a result, rodents have been known to gnaw on a variety of objects from wood to plastic sprinkler pipes to electrical wiring (Salmon and Gorenzel, 2011; Salmon and Baldwin, 2011; Timm et al., 2011). Therefore, it possible for a rodent to gnaw on a geomembrane. The Navy responded, "…*the Navy does not believe that CDFG has presented sufficient technical information to support its assertion that burrowing animals would cause significant damage to the landfill cover over time*." Please see DFG-OSPR's responses above on the PP Specific Comment 2a1-5 and 2b1 regarding biotic barriers and damage to geomembranes from burrowing animals. 4. The Navy has asserted that the geocomposite drainage layer at Parcel E-2 will deter burrowing animals from damaging the underlying geomembrane. Based on this assertion, DFG-OSPR requested the Navy explain why Moffett Field Site 22 installed a	*(see response on pages 30 through 36)*

Draft Record of Decision for Parcel E-2, Hunters Point Naval Shipyard		
Comments by California Department of Fish and Game (Charlie Huang and Tami Nakahara), dated May 14, 2012 *(continued)*		
Comment No.	**Comment**	**Response**
Comments on Navy Responses to Specific Comments on Proposed Plan for Parcel E-2 (continued)		
2. (*cont.*)	biotic barrier of cobblestone and cement slurry in their landfill cap and Port Hueneme Site 14 is poisoning gophers on a weekly basis, to prevent burrowing animals from damaging their underlying geomembranes. The Navy responded, "*The difference in existing site conditions between the Parcel E-2 Landfill and NAS Moffett Field Site 22 warrant selection of different response actions. Therefore, the direct comparison of the preferred alternative for Parcel E-2 with the selected response action for NAS Moffett Field Site 22 is inappropriate. Regarding the potential use of pesticides to control burrowing animals, the Navy has previously responded to CDFG concerns on this matter by stating that low-impact control measures (such as raptor perches) would be preferred over higher impact measures (such as poisons)…*" As DFG-OSPR stated before, DFG-OSPR will not approve the use of pesticides, such as Fumitoxin, in areas where there are State special status species such as Burrowing Owls. If the Navy has take of State and Federal special status species during landfill maintenance activities, they may be in violation of State and Federal ARARs. Please see DFG- OSPR's response above on the PP Specific Comment 2b1 regarding control of burrowing animals at Site 1. 5. DFG-OSPR commented, "*If the number of burrowing animals increase at Parcel E-2 in the future, how will the Navy adequately prevent these animals from damaging the landfill cap*?" The Navy responded, "*The Navy believes that the information in the RI/FS Report (ERRG and Shaw, 2011) adequately demonstrates that the proposed cover, which will be regularly inspected and maintained (with animal control measures implemented as necessary), will be protective of human health and the environment.*" The Navy did not provide an adequate response to DFG-OSPR's question. DFG-OSPR disagrees that the information in the RI/FS Report adequately demonstrates that the proposed cover will be protective	*(see response on pages 30 through 36)*

Draft Record of Decision for Parcel E-2, Hunters Point Naval Shipyard

Comments by California Department of Fish and Game (Charlie Huang and Tami Nakahara), dated May 14, 2012 *(continued)*

Comment No.	Comment	Response
Comments on Navy Responses to Specific Comments on Proposed Plan for Parcel E-2 (continued)		
2. (*cont.*)	of the environment. Please see DFG-OSPR's responses above on the PP Specific Comment 2a1-5 and 2b1 regarding biotic barriers and damage to geomembranes from burrowing animals.	*(see response on pages 30 through 36)*
	6. DFG-OSPR commented, "*Please provide more information in the ROD regarding how the Navy will adequately maintain, and detect and repair damage to the geomembrane in perpetuity. The general information provided in the PP is not sufficient to determine if the proposed remedial alternative will be adequate to protect ecological receptors. Please also explain how the Navy will deal with the geomembrane once it is damaged (by burrowing animals) or degrades to the point where it no longer functions properly*" (Huang and Nakahara, 2011). The Navy responded, "*The Navy believes that the information in the RI/FS Report adequately demonstrates that the proposed cover, which will be regularly inspected and maintained (with animal control measures implemented as necessary), will be protective of human health and the environment. The Navy does not believe that CDFG has presented a sufficient technical basis to support their requests for a thicker soil cover or a biointrusion barrier, or their assertions that burrowing animals will damage the geomembrane or the geomembrane will require replacement because of degradation*." The Navy did not provide an adequate response to DFG-OSPR's questions. DFG-OSPR disagrees that the information in the RI/FS Report adequately demonstrates that the proposed cover will be protective of the environment. Please see DFG-OSPR's responses above on the PP Specific Comment 2a1-5 and 2b1 regarding the need for biotic barriers to prevent damage to geomembranes from burrowing animals.	

Draft Record of Decision for Parcel E-2, Hunters Point Naval Shipyard

Comments by California Department of Fish and Game (Charlie Huang and Tami Nakahara), dated May 14, 2012 *(continued)*

Comment No.	Comment	Response
Comments on Navy Responses to Specific Comments on Proposed Plan for Parcel E-2 (continued)		
3.	The Navy's response [to Specific Comment 3 on the Proposed Plan] is acceptable.	Comment acknowledged.
4.	*Attachment 1, Key Applicable or Relevant and Appropriate Requirements.* The PP states a complete list of potential ARARs identified for the Preferred Alternative is provided in Appendix N of the Parcel E-2 RI/FS Report. Under Appendix N, several potential biological resource ARARs were not included as ARARs, such as the Federal Endangered Species Act, California Fish and Game Code (F&GC) sections 1908, 4700, and 5050. DFG-OSPR requests these ARARs be added to the list of ARARs for the remedial activities at Parcel E-2. a. The Navy responded, "*The Navy does not agree that past observations at Heron's Head Park are relevant to Parcel E-2 because the Navy has performed site-specific studies, as detailed in the RI/FS Report (see Section 2.4) (ERRG and Shaw* [Engineering/Remediation Resources Group, Inc.], *2011), to demonstrate that neither the California Clapper Rail nor the salt marsh harvest mouse is present at Parcel E-2. The Navy's findings are confirmed by information provided in the SFRA's* [San Francisco Redevelopment Agency] *recent EIR* [Environmental Impact Report] *(SFRA, 2009).*" The site-specific studies the Navy cites in Section 2.4 of the RI/FS Report were conducted in 1997, 2001, 2002, and 2004. These studies were conducted eight or more years ago and we believe that they are outdated. A pair of California Clapper Rails and their two chicks were observed in 2011 in a restored coastal salt marsh at Heron's Head Park, 2 miles north of HPNS (Fimrite, 2011). This is the first time in decades that California Clapper Rails have been documented to be breeding in San Francisco (Fimrite, 2011). California State Parks is also restoring the coastal salt marsh at Yosemite Slough, adjacent to Parcel E-2. This restoration is planned to be completed in the spring of 2012 (California State Parks Foundation, 2012) and will also provide habitat for various State and/or Federally listed species such as the California Clapper Rail, California Black Rail, and salt	As stated in the previous responses to CDFG's comments on the Proposed Plan, the Navy has previously responded to CDFG comments (on the RI/FS Report) regarding the various requirements identified by CDFG as potential ARARs and has provided adequate information to support the determinations of which requirements may qualify as ARARs for the potential response actions at Parcel E-2. Please refer to Appendix S of the Final RI/FS Report (ERRG and Shaw, 2011) for further information. a. The Navy wishes to clarify that there is no promulgated requirement mandating the frequency of biological surveys for the CERCLA remedial action at Parcel E-2. The Navy asserts that the past ecological assessments at Parcels E and E-2, as documented in the Final RI/FS Report, serve as an adequate basis for identifying potential special-status species for future remedial actions, and that the ARARs identified in the Draft ROD for Parcel E-2 are adequate to protect biological resources that have been identified at the site. However, the Navy recognizes that the ongoing restoration effort at Yosemite Slough may change site conditions prior to the remedial action at Parcel E-2. Accordingly, the Navy will perform a focused biological survey, in conjunction with the RD, to determine the extent to which the future wetlands at Yosemite Slough may have attracted endangered species to Parcel E-2. The RD will identify the specific objectives of and procedures for the biological survey, and will discuss potential follow-on actions based on the survey results. The Navy does not believe that it is appropriate to detail this information in the ROD because these documents are only intended to summarize the conceptual designs for the proposed remediation.

Draft Record of Decision for Parcel E-2, Hunters Point Naval Shipyard

Comments by California Department of Fish and Game (Charlie Huang and Tami Nakahara), dated May 14, 2012 *(continued)*

Comment No.	Comment	Response
Comments on Navy Responses to Specific Comments on Proposed Plan for Parcel E-2 (continued)		
4. *(cont.)*	marsh harvest mouse (SMHM). Although these species were not observed during surveys at HPNS in the past, the surrounding restored salt marshes may attract these species to these areas as well as to HPNS. The coastal salt marsh at HPNS is along the Pacific Flyway and provides potential habitat for California Clapper Rails, California Black Rails, and SMHM. In light of recent restoration activities and newly documented species occurrences in the area, these species may utilize the habitat at HPNS now and in the future. According to the SFRA's 2009 EIR, green sturgeon and Central California Coast Steelhead are Federally-listed as threatened and HPNS is within the designated critical habitat for both of these species (SFRA, 2009). In addition, spring-run Chinook salmon (Federally and State threatened) and winter-run Chinook salmon (Federally and State endangered) have a high likelihood to occur within the HPNS area (SFRA, 2009). Longfin smelt (State threatened) have a moderate likelihood to occur within the HPNS area (SFRA, 2009). In addition, the Final Work Plan for the Time-Critical Removal Action for Installation Restoration Site 02 Northwest and Central Parcel E lists State and Federally listed Chinook salmon as a species observed at or near HPNS (Tetra Tech EC, Inc. [TtECI], 2005). The Navy's 2004 Biological Assessment (BA) (Tetra Tech FW, Inc. [TtFW], 2004) also lists the following Federally listed species as potentially occurring within the Parcel E and E-2 project areas: Sacramento River Winter Run Chinook Salmon, Central Valley Spring Run Chinook Salmon, Central California Coast Steelhead, California Central Valley Steelhead, California Clapper Rail, California Brown Pelican, California Least Tern, and SMHM. Both salmon species, the Clapper Rail, the Least Tern, and the SMHM are also State listed species. The BA further determined that the actions at the Metal Slag Area and PCB Hot Spot Area "*MAY AFFECT, BUT ARE NOT LIKELY TO ADVERSELY AFFECT*" Central California Valley steelhead, Central	The Navy wishes to clarify that, as detailed in the Final RI/FS Report, no special-status species were observed in the existing wetlands at Parcel E-2 and the overall value of these existing wetlands is low because they are located on manmade land that has been disturbed by human activities and contains chemical contamination. Also, as visible during the site visit on May 8, 2012, the restoration efforts at Yosemite Slough are not complete and no new wetland habitat is currently present at the adjoining property. Therefore, the Navy does not agree with CDFG's statement that habitat exists at HPNS for the cited endangered species. The Navy also wishes to clarify that the previous evaluations cited by CDFG, which identified the potential presence of certain fish species, considered the offshore property at HPNS and extended beyond the Parcel E-2 boundary. The offshore property is not part of the selected remedy for Parcel E-2. Further, as detailed in the Final RI/FS Report (Section 12 and Appendix O), the selected remedy would not involve placement of fill within tidal flats and shoreline construction at higher elevations would be performed in a manner that would not significantly affect the aquatic ecosystem offshore of Parcel E-2. Therefore, the previous evaluations regarding the potential presence of certain fish species (from the SFRA's 2009 EIR and TtEC's work plan) have no bearing on the selected remedy for Parcel E-2.

Draft Record of Decision for Parcel E-2, Hunters Point Naval Shipyard		
Comments by California Department of Fish and Game (Charlie Huang and Tami Nakahara), dated May 14, 2012 *(continued)*		
Comment No.	**Comment**	**Response**
Comments on Navy Responses to Specific Comments on Proposed Plan for Parcel E-2 (continued)		
4. *(cont.)*	California Coast steelhead, Central Valley Spring Run Chinook salmon, Sacramento River Winter Run Chinook salmon, and SMHM. These species are protected by the Federal and/or State Endangered Species Acts, which would appear to make these statutes relevant and appropriate for consideration at Parcel E-2. During the May 8, 2012 meeting with the Navy and DTSC, the Navy discussed the possibility of filing an Explanation of Significant Differences (ESD) to amend the finalized ROD and include the State and Federal Endangered Species Acts if State and Federally threatened and endangered species are observed at HPNS in the future. Based on these discussions, DFG-OSPR requests the ROD include a statement that if State and Federally threatened and endangered species occur at the site at some point in the future, then F&GC section 2080 and the Federal Endangered Species Act will be ARARs and an ESD will be required along with appropriate protective measures approved by DFG-OSPR and the U.S. Fish and Wildlife Service (USFWS).	*(see response on pages 42 and 43)*
	b. The Navy responded, "*The Navy concluded in Section 2.4 of the RI/FS Report that, based on past biological surveys performed by the Navy, no rare or endangered plants are present at HPNS. This finding is confirmed by information provided in the SFRA's recent EIR.*" The site-specific studies the Navy cites in Section 2.4 of the RI/FS Report were conducted in 1997, 2001, 2002, and 2004. These studies were conducted eight or more years ago and we believe that they are outdated because species composition at the site may have changed over the years. The past plant surveys in the SFRA EIR were also conducted at HPNS in 2004, 2006, 2007, and 2008 and are outdated. In addition, according to the SFRA EIR (SFRA, 2009), the August 2007 and July 2008 surveys were conducted in the dry season when most plant species were dormant or had already died back leaving only dried plant parts for identification. The May 2008 survey was also conducted during unusually dry weather and most plant species were dormant or had	b. As stated previously, both in this response and the response to CDFG comments on the Proposed Plan, there is no promulgated requirement mandating the frequency of plant surveys for the CERCLA remedial action at Parcel E-2. The Navy asserts that the past ecological assessments at Parcels E and E-2, as documented in the Final RI/FS Report, serve as an adequate basis for identifying potential special-status species for future remedial actions, and that the ARARs identified in the Draft ROD for Parcel E-2 are adequate to protect biological resources that have been identified at the site. Overall, the Navy finds that the technical concerns identified by CDFG during their review of the Draft ROD do not meet the requirements outlined in Section 7.10 of the FFA. Specifically, CDFG has not presented any significant new information or demonstrated that their recommendations are necessary to protect human health or the environment. Accordingly, the Navy does not agree that

Draft Record of Decision for Parcel E-2, Hunters Point Naval Shipyard

Comments by California Department of Fish and Game (Charlie Huang and Tami Nakahara), dated May 14, 2012 *(continued)*

Comment No.	Comment	Response
Comments on Navy Responses to Specific Comments on Proposed Plan for Parcel E-2 (continued)		
4. *(cont.)*	already died back by that time. As a result, some plants observed during the survey could only be identified to the Genus level. Therefore, it is possible that special status plant species may not have been evident and identifiable during these surveys. We also do not think the prior studies are an accurate reflection of current conditions at the site because California seablite has been documented to occur at Heron's Head Park, near HPNS (Port of San Francisco, 2012). Although special status plant species were not observed at HPNS in the past, potential habitat for these species occurs at HPNS. DFG-OSPR believes that F&GC section 1908 (native plant protection) is relevant and appropriate because there is potential habitat for rare or endangered plants, such as bristly sedge (*Carex comosa*), Diablo helianthella (*Helianthella castanea*), seaside tarplant (*Hemizonia congesta* ssp. *congesta*), rose leptosiphon (*Leptosiphon rosaceus*), and California seablite (*Suaeda californica*) on or near Parcel E-2. Based on discussions at the May 8, 2012 meeting, DFG-OSPR requests the ROD include a statement that if State rare, threatened, and endangered plant species occur at the site at some point in the future, then Fish and Game Code section 1908 will be an ARAR and an ESD will be required along with appropriate protective measures approved by DFG-OSPR.	CDFG's technical concerns, as identified in these comments, require reconsideration of previous conclusions presented in the Final RI/FS Report and summarized in the Draft ROD. The language in the Draft ROD, which is consistent with the Final RI/FS Report, will not be revised in response to CDFG's comment.
	c. The Navy responded, "*California F&GC § 4700 is not an ARAR for the selected remedy at Parcel E-2 because none of the fully protected mammals (including the salt marsh harvest mouse) are present at the site*." According to the Draft Final Ecological Risk Assessment Validation Study Report for Parcel E, small mammal trapping was conducted in June, July, and September 1998 (Tetra Tech EM, Inc. [TtEMI] and Levine Fricke Recon [LFR], 2000). This survey is over 13 years old and outdated. The Navy's 2004 BA concluded that "*Salt-marsh harvest mice are unlikely to be effected because the species is not expected to be present. However, complete habitat avoidance is not*	c. Please refer to the response to comment 4a.

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Comments by California Department of Fish and Game (Charlie Huang and Tami Nakahara), dated May 14, 2012 *(continued)*		
Comment No.	**Comment**	**Response**
Comments on Navy Responses to Specific Comments on Proposed Plan for Parcel E-2 (continued)		
4. *(cont.)*	*possible; therefore the proposed projects 'MAY AFFECT, BUT ARE NOT LIKELY TO ADVERSELY AFFECT,' salt-marsh harvest mouse*" (TtFW, 2004). DFG-OSPR continues to assert that F&GC section 4700 (fully-protected mammals) is relevant and appropriate because potential habitat for the SMHM is located on or near Parcel E- 2. Based on discussions at the May 8, 2012 meeting, DFG-OSPR requests the ROD include a statement that if State fully protected mammals occur at the site at some point in the future, then Fish and Game Code section 4700 will be an ARAR and an ESD will be required along with appropriate protective measures approved by DFG-OSPR.	*(see above)*
	d. The Navy responded, "*…the Navy does not agree with CDFG's assertion that fully protected reptiles and amphibians are present at Parcel E-2 or elsewhere at HPNS*." The site-specific studies the Navy cites in Section 2.4 of the RI/FS Report were conducted in 1997, 2001, 2002, and 2004. These studies were conducted eight or more years ago and we believe that they are outdated because the studies do not appear to accurately reflect the conditions at the site. F&GC section 5050 (fully-protected reptiles and amphibians) should be considered relevant and appropriate because the freshwater wetlands at Parcel E- 2 may provide potential habitat for the San Francisco garter snake. Based on discussions at the May 8, 2012 meeting, DFG-OSPR requests the ROD include a statement that if State fully protected reptiles and amphibians occur at the site at some point in the future, then Fish and Game Code section 5050 will be an ARAR and an ESD will be required along with appropriate protective measures approved by DFG-OSPR.	d. Please refer to the response to comment 4a.

Draft Record of Decision for Parcel E-2, Hunters Point Naval Shipyard

Comments by California Department of Fish and Game (Charlie Huang and Tami Nakahara), dated May 14, 2012 *(continued)*

Comment No.	Comment	Response
	Specific Comments on Draft Record of Decision for Parcel E-2	
1.	*Page 2-27, Table 5*. DFG-OSPR checked the Draft Final Ecological Risk Assessment Validation Study Report, Parcel E (TtEMI and LFR, 2000), as part of this review, and found the remedial goals (RGs) for copper and lead are lower than protective soil concentrations (PSCs) for ecological receptors, which are highlighted by yellow color. Those PSCs based on soil cores at depths of 0 to 6 and 6 to 12 inches bgs were reviewed and concurred by DFG-OSPR (Chernoff, 1999). This comment is intended for the DTSC Project Manager.	This comment was not intended for the Navy and does not require a response; however, the Navy wishes to clarify that, as detailed in the Final RI/FS Report (Section 7 and Appendix L), the additional data collected during a soil data gaps investigation in 2002 resulted in the identification of new COPECs and the calculation of updated PSCs. The updated PSCs supersede the values presented in the 2000 Validation Study Report.

Table 1. Comparison of chemicals concentrations in soil and sediment for Table 5 on Page 2-27 of Draft Record of Decisions for Parcel E-2

COEC	RG (mg/kg)	PSC in 2000 VS (mg/kg)	Remark
Cadmium	4.2	4.24	
Copper	470	1,083.7	
Lead	197	441.9	
Manganese	2,433		
Mercury	1.0		
Nickel	1,941	1,941.4	
Vanadium	117		
Zinc	719	719.3	
DDT	3.53		
PCBs	37		0.74 by a human recreational exposure
Total HMW	231		

COECs: chemicals of ecological concern

RGs: remedial goals

PSCs: protective soil concentrations

Draft Record of Decision for Parcel E-2, Hunters Point Naval Shipyard		
Comments by California Department of Fish and Game (Charlie Huang and Tami Nakahara), dated May 14, 2012 *(continued)*		
Comment No.	**Comment**	**Response**
Specific Comments on Draft Record of Decision for Parcel E-2 (continued)		
2.	*Attachment 4, page 11, Federal Location-Specific ARARs and page 12, State Location-Specific ARARs*. The Navy has accepted the Federal Migratory Bird Treaty Act and F&GC section 3511 as ARARs. The Navy will need to consult with the USFWS and DFG-OSPR to determine the appropriate avoidance, minimization, and mitigation measures to implement to prevent impacts to special status species from remedial activities. These measures will need to include at minimum, the use of a qualified biologist approved by DFG-OSPR and USFWS to monitor for special status species on site, in order to substantively comply with these ARARs. DFG-OSPR reserves the right to conduct periodic site visits during remedial actions to confirm implementation of avoidance, minimization, and mitigation measures.	The Navy wishes to clarify that the administrative and procedural requirements for preparing biological assessment and biological opinion documents (which would evaluate avoidance, minimization, and mitigation measures) are not ARARs for the on-site CERCLA remedial action being selected in the ROD. As described previously, the RD will identify the specific implementation steps necessary to comply with the pertinent ARARs for protection of biological resources; however, the Navy does not believe that it is appropriate to detail these specific implementation steps in the ROD because this document is only intended to summarize the conceptual design for the proposed remediation. Also, the Navy encourages CDFG to conduct site visits during the upcoming remedial action at Parcel E-2.

Draft Record of Decision for Parcel E-2, Hunters Point Naval Shipyard

Comments by San Francisco Bay Regional Water Quality Control Board (Tina Low) dated May 14, 2012

Comment No.	Comment	Response
1.	**1.1 Selected Remedy**: This section contains a bulleted list of the actions proposed to address risks posed by contaminated media. Please edit (suggested insertion underlined) the 4th bullet to state "Install below-ground barriers to limit groundwater flow from the landfill to San Francisco Bay and pump and treat groundwater if necessary to prevent discharge of contaminants."	The subject bullet was revised as follows: "*Install below-ground barriers to limit groundwater flow from the landfill to San Francisco Bay, including a contingency action to hydraulically control groundwater (behind the barrier) if necessary to satisfy pertinent ARARs (see Section 2.9.4).*"
2.	**2.3.3 Shoreline Sediment:** This section states that wildlife are at risk from exposure to PCBs in surface sediments along the shoreline, and that source control measures are warranted in the Metal Slag Area to control potential releases of copper and lead to Parcel F. Please clarify whether these sources of metals and PCBs were removed by the PCB Hot Spot (Phase 2) and Metal Slag removal actions, or whether these sources remain to be addressed in the remedy.	Section 2.3.3 describes the site conditions along the shoreline based on information that has been published in the administrative record. This information includes post-excavation conditions following the Metal Slag Area removal action and the Phase 1 removal action at the PCB[3] Hot Spot Area (completed in 2006). As detailed in Section 2.5.3, these areas contain elevated copper, lead, and PCB concentrations that comprise several nearshore hot spots. Although the Navy, under the Phase 2 removal action at the PCB Hot Spot Area, has addressed one nearshore hot spot, the results of this ongoing removal action are not yet published. Accordingly, a detailed analysis of the post-excavation at this area cannot be provided in this ROD. Section 2.9.2 of the Draft ROD indicates the Navy's intent to evaluate post-excavation conditions in the RD and perform additional excavation, if necessary to achieve the hot spot goals. Please refer to the response to EPA general comment 2 for a description of how the removal action relates to the future remedial action (including the relationship between the hot spot goals and remediation goals). Section 2.9.2 was revised to further clarify that the Phase 2 removal action at the PCB Hot Spot Area is ongoing and post-excavation results are not yet available.
3.	**2.5.3 Basis for Response Action:** For clarity and consistency with the Remedial Investigation/Feasibility Study (RI/FS), in the discussion of hot spots, please refer to the hot spot Tier categories used in the RI/FS (e.g., near-shore hot spots are designated Tier 1).	The Navy prefers to retain the terms "nearshore hot spots" and "upland hot spots" in the ROD because it is more readily understandable than the hot spot tiers identified in the RI/FS Report. The Navy's rationale for this decision is summarized below. The process of identifying hot spots in the RI/FS Report focused on the location of each hot spot relative to San Francisco Bay and its potential to

[3] Acronyms and abbreviations are summarized at the end of this attachment.

Draft Record of Decision for Parcel E-2, Hunters Point Naval Shipyard

Comments by San Francisco Bay Regional Water Quality Control Board (Tina Low) dated May 14, 2012 *(continued)*

Comment No.	Comment	Response
3. *(cont.)*	*(see above)*	serve as a continuing source to groundwater contamination. The hotspot tiers identified in the RI/FS Report were established to categorize the relative importance of source removal at each hot spot. This categorization was used in the RI/FS Report to develop different remedial alternatives with varying degrees of hotspot removal. However, upon identification of the preferred alternative in the Proposed Plan, the Navy decided that terminology using hotspot tiers was unnecessary and potentially confusing. To simplify the discussion, the Proposed Plan introduced the terms "nearshore hot spots" and "upland hot spots" that aligned with the hot spot goals identified in the RI/FS Report. Specifically, the Navy established hot spot goals for locations close to San Francisco Bay (nearshore hot spots) at 10 times the corresponding remediation goal. Hot spot goals for locations further inland (upland hot spots) were established at 100 times the corresponding remediation goal. Hot spot goals were identified in Table 12-2 of the RI/FS Report and Table 4 of the ROD. Remediation goals were identified in Section 9 of the RI/FS Report and Table 5 of the ROD.
4.	**2.5.3 Basis for Response Action – text discussing groundwater areas posing a potential risk to wildlife**: As discussed in this section, several contaminants of ecological concern (COPECs) in groundwater may migrate to San Francisco Bay (Bay) at concentrations that exceed aquatic wildlife criteria. COPECs identified include copper, lead, zinc, un-ionized ammonia, sulfide, and cyanide. As the proposed remedy includes pumping and treatment of groundwater (if necessary), please clarify the criteria that will be used to determine whether pumping and/or treatment will be necessary. At a minimum, contaminated groundwater must not be allowed to mound behind the groundwater barrier. We understand that remedial actions to address the potential risk of COPECs migrating to the Bay will be evaluated in the Remedial Design, however this Record of Decision should make it clear that the remedy will prevent discharge of COPECs exceeding criteria for aquatic wildlife.	Section 2.9.2 was revised to specify, consistent with information in the RI/FS Report, that: • The groundwater would be hydraulically controlled if necessary to keep contaminants from flowing into San Francisco Bay at concentrations greater than the corresponding water quality criteria for aquatic wildlife (to comply with the surface water RAO specified in Section 2.7). • The RD will develop specific monitoring criteria for A-aquifer groundwater that address the potential risk to aquatic wildlife. The Navy wishes to clarify that the primary design objective for the slurry walls is to reduce the rate of potentially contaminated groundwater flowing into San Francisco Bay. The RD will evaluate whether additional performance criteria are necessary to ensure the long-term effectiveness of the slurry wall. For example, a performance criterion pertaining to the control of upgradient hydraulic pressure may be required if hydraulic fracturing of the slurry wall is determined to be a significant failure mechanism. However, available literature identifies a range of acceptable hydraulic pressures upgradient of slurry walls (EPA, 1984; Sharma and Lewis, 1994), and demonstrates that an absolute prohibition on groundwater mounding behind the wall is not necessary.

Draft Record of Decision for Parcel E-2, Hunters Point Naval Shipyard

Comments by San Francisco Bay Regional Water Quality Control Board (Tina Low) dated May 14, 2012 *(continued)*

Comment No.	Comment	Response
5.	**2.9.2 Description of Selected Remedy:** The description of the selected remedy seems fragmented, with information presented in section 2.8.1, Table 8, and section 2.9.2. For clarity, please consolidate the information such that section 2.9.2 presents a complete description of the selected remedy. For example, please clarify in section 2.9.2 that the remedy includes excavations for Tiers 1-5 hot spots. It is also not clear, in section 2.9.2, which elements of the selected remedy have already been completed as prior removal actions, and which ones remain to be implemented. Figure 12 *Hot Spot Excavations and Groundwater Containment Features* depicts some excavation areas but appears to leave others out, including the Phase1 PCB Hot Spot Removal Action and the Ship Shielding Removal Action. In addition, the excavation footprint of the Metal Slag area differs from that shown in Figure 11 *Groundwater Areas Posing a Potential Risk to Aquatic Wildlife*. We suggest enlarging Figure 12 and revising to clearly depict all removal areas and differentiating between prior and future removal areas. If a prior removal area needs to be re-excavated, a note indicating such a situation can be included on the figure. Please also add a note to Figure 12 to indicate that the nearshore slurry wall groundwater containment system includes pumping and treatment capability to prevent migration of COPECs to the Bay.	As stated in the response to comment 2, the ROD summarizes information that has been published in the administrative record, which includes post-excavation conditions following the Metal Slag Area removal action and the Phase 1 removal action at the PCB Hot Spot Area (completed in 2006) but does not include the results of the Phase 2 removal action at the PCB Hot Spot Area. Accordingly, Section 2.9.2 describes both ongoing and future hotspot removal activities and indicates the Navy's intent to evaluate post-excavation conditions in the RD and perform additional excavation, if necessary, to achieve the hot spot goals. Section 2.9.2 was revised, in response to this comment and comments from other reviewers, to provide additional details regarding the selected remedy. For example, Section 2.9.2 was revised to: • Clarify that the Phase 2 removal action at the PCB Hot Spot Area is ongoing and post-excavation results are not yet available. • Specify the Navy's plans to remove radioactive contamination at the Ship-Shielding Area and that the post-excavation conditions will be analyzed in the RD (to determine if additional removal is necessary to satisfy the RAOs, including remediation goals). • Identify the additional actions necessary to meet the radiological RAO. Figure 12 was revised to identify the ongoing and future hotspot removal activities at Parcel E-2. Figure 12 was not revised to note the Ship-Shielding TCRA because this ongoing action is not a hot spot removal; however, this removal action area was added to Figure 7. Figure 12 was not revised to note the potential hydraulic control of groundwater because of (1) the limited available space on the figure (following the revisions to better distinguish between ongoing and future hot spot excavations on Figure 12), and (2) the text on page 2-39 was revised to state that groundwater would be hydraulically controlled if necessary to keep contaminants from flowing into San Francisco Bay at concentrations greater than the corresponding water quality criteria for aquatic wildlife (to comply with the surface water RAO specified in Section 2.7 and consistent with ARARs identified in Attachment 4).

Draft Record of Decision for Parcel E-2, Hunters Point Naval Shipyard

Comments by San Francisco Bay Regional Water Quality Control Board (Tina Low) dated May 14, 2012 *(continued)*

Comment No.	Comment	Response
6.	**2.9.2 Description of Selected Remedy- text describing new wetlands:** The water sources for the new wetlands must consist only of clean surface water and/or flow from the Bay. Runoff or groundwater that has come into contact with contaminant sources should not be directed or discharged to the new wetlands. Please add language to clarify this design criterion.	The Navy does not agree that the water source for the new freshwater wetlands should consist only of surface water. The conceptual design evaluated in the RI/FS Report included a preliminary assessment of groundwater quality west of the Parcel E-2 Landfill. This assessment, which is detailed in Section 12.2.3.7 of the Final RI/FS Report and used the water quality criteria identified in the Basin Plan and CTR, did not identify any COECs for the freshwater wetlands other than un-ionized ammonia and sulfide, which are anions that readily transform to non-toxic compounds upon discharge to oxygenated surface water. The Navy will refine this assessment in the RD, but believes that the available data are adequate to support the conceptual design. In addition, the subsurface drain will be designed to ensure that groundwater flow is sufficiently aerated prior to discharge into the freshwater wetland. Further, the Navy wishes to clarify that the groundwater flow diversion system (which would direct groundwater into the freshwater wetlands) is intended to reduce groundwater levels within the Parcel E-2 Landfill, thereby reducing potential groundwater mounding behind the nearshore slurry wall. As noted in the response to comment 4, the control of hydraulic pressure upgradient of slurry walls is a potentially important design consideration. Elimination of the groundwater flow diversion system would significantly constrain the performance of the selected remedy.
7.	**2.9.2 Description of Selected Remedy- text describing landfill gas controls**: This section states that extracted landfill gas would be treated by either an enclosed flare or adsorbent material, such as charcoal filter. Since landfill gas contains both methane and NMOCs, both an enclosed flare (to control methane) and adsorbent material (to treat NMOCs) are necessary. Please revise this section to state that both, not either, the enclosed flare and the adsorbent material will be included.	The conceptual designs evaluated in the RI/FS Report did not include use of both an enclosed flare and adsorbent material to treat landfill gas, but evaluated each technology as mutually exclusive options for Alternatives 3, 4, and 5. The Navy does not agree that both adsorbent material and an enclosed flare are necessary for the selected remedy. The Navy responded to an identical comment from the EPA Project Manager and provided more detailed information (as previously detailed in the RI/FS Report) in that response. Please refer to response to EPA comment 23 for additional information in support of the Navy's position.

Draft Record of Decision for Parcel E-2, Hunters Point Naval Shipyard		
Comments by San Francisco Department of Public Health (Amy Brownell) dated May 20, 2012		
Comment No.	**Comment**	**Response**
General Comment		
1.	We support the Regulatory Agencies in their comments on the subject document.	Comment acknowledged.
Specific Comments on Draft Record of Decision for Parcel E-2		
2.	**Section 1.1, Page 1-2, third bullet under "selected remedy consists"** the bullet is written as "Install a protective liner and soil cover over all of Parcel E-2" While we understand that this was the same bullet written in the Proposed Plan, there was actually additional information provided in the Glossary of the Proposed Plan that explained the words "protective liner" further. So while we appreciate wanting to maintain parallel structure between these two documents, we think this bullet should be slightly expanded in the ROD. We suggest: *Install a protective liner, consisting of a geosynthetic liner with a geocomposite drainage layer, and a soil cover over all of Parcel E-2* Also suggest using this expanded wording in other places in the document where protective liner is mentioned, as appropriate.	The subject bullet item was revised, based on this comment and comment 1 from DTSC[4], to state: "*Install a ~~protective liner and~~ soil cover over all of Parcel E-2, with a protective liner (consisting of a geomembrane with an overlying geocomposite drainage layer) where needed to minimize water seeping into the contaminated material.*" This clarification is consistent with existing text in Section 2.9.2.
3.	**Section 1.1, Page 1-3, first full sentence** suggest adding "of some contaminants" to the end of the sentence as a modification to the natural attenuation statement. Only some contaminants will be subject to natural attenuation.	The subject sentence was revised as requested.
4.	**Section 2.1, Page 2-2, Figure 2** The sentence above Figure 2 states "A small portion of the Parcel E-2 landfill extends north onto property owned" by UCSF. But the figure does not illustrate this properly. Please show the correct UCSF property line showing the portion of the landfill on UCSF property.	Figure 2 was revised as requested.

[4] Acronyms and abbreviations are summarized at the end of this attachment.

Draft Record of Decision for Parcel E-2, Hunters Point Naval Shipyard

Comments by San Francisco Department of Public Health (Amy Brownell) dated May 20, 2012 *(continued)*

Comment No.	Comment	Response
Specific Comments on Draft Record of Decision for Parcel E-2 (continued)		
5.	**Section 2.2, Page 2-3, second paragraph** Suggest adding that the Navy also installed a groundwater extraction system and containment barrier in 1998, an interim cap on 14.5 acres in 2001, and a landfill gas barrier wall and extraction and monitoring wells in 2003. Also, explain the breakdown of different volumes of materials in the 1 million cubic yard estimate of landfill volume – see Attachment 3, page 66, response to Specific Comment 2 from Dr. McGowan.	Section 2.2 was revised to (1) include a forward reference to Section 2.3, which discusses the Navy's previous investigations and removal actions; (2) briefly describe the estimated volume of solid waste and overlying soil cover; and (3) briefly describe the interim landfill cap to help explain the second source of overlying soil cover (in addition to the soil cover placed in the early 1970s, which is already discussed in Section 2.2). In addition, Section 2.8.1 was revised to better explain the estimated excavation volumes at the Parcel E-2 Landfill (as evaluated in Alternative 2).
6.	**Section 2.2, Page 2-3, second bullet bottom of page:** Please indicate in the second sentence that the metal slag has been removed.	The subject bullet in Section 2.2 was revised to state "*The Metal Slag Area was partially addressed under an early removal action (see Section 2.3).*" A similar statement was added to the first bullet in Section 2.2, pertaining to the PCB Hot Spot Area.
7.	**Section 2.3, Page 2-6** Suggest title change from "Previous Investigations" to "Previous Investigations and Removals/Interim Controls."	Consistent with the title of Table 1, the title of Section 2.3 was revised to "*Previous Investigations and Removal Actions*".
8.	**Section 2.3, Page 2-8** Top of page, further explain the removal and interim control actions taken in this paragraph. Suggest retitle "Table 1", next page to also include "Interim Controls."	The Navy's previous actions to contain or control hazardous substances at Parcel E-2 have been performed under its removal action authority under CERCLA and the NCP. Accordingly, the Navy believes that it is most appropriate (and more concise) to refer to all interim actions as removal actions.
9.	**Table 1, Page 2-9, bottom, third sentence**: Suggest rewording to not overstate what was known "……limit air from entering into the landfill, ~~they smothered any smoldering areas below ground~~ **removing the potential for further combustion.**	The subject statement in Table 1 was revised, consistent with text from the RI/FS Report, to state "*Because the protective liner and soil cover limit air from entering into the landfill, they prevent more fires from occurring under the capped area ~~smothered any smoldering areas below ground~~*." Similar text was also added to Section 2.2 (in response to comment 5 above).
10.	**Section 2.3.5, Page 2-14, first sentence:** Please revise to state correct number of monitoring wells or revise to clarify if these are groundwater sampling points. Based on the most recent Semiannual Groundwater Monitoring Report there appears to be 16 A-aquifer wells and 6 B-aquifer wells.	Section 2.3.5 was revised to clarify that the 116 A-aquifer wells includes temporary monitoring points. Further, the Navy wishes to clarify that the total number of wells cited in Section 2.3.5 is accurate because, as stated in the subject sentence, Section 2.3.5 discusses historical groundwater data collected at Parcel E-2 between 1990 and 2008. A subset of the existing monitoring wells is used in the current groundwater monitoring program.

Draft Record of Decision for Parcel E-2, Hunters Point Naval Shipyard		
Comments by San Francisco Department of Public Health (Amy Brownell) dated May 20, 2012 *(continued)*		
Comment No.	**Comment**	**Response**
Specific Comments on Draft Record of Decision for Parcel E-2 (continued)		
11.	**Section 2.3.6, Page 2-14, last bullet** Suggest change to: 37 of the 73 survey units – or whatever the correct total number is.	The subject bullet was revised to clarify that the data set consists of 72 survey units. The first paragraph of Section 2.3.6 was revised to clarify, consistent with text from the Radiological Addendum to the RI/FS Report, that one of the original 73 survey units was subsequently excavated during the Phase 1 removal action at the PCB Hot Spot Area, resulting in data remaining from 72 survey units.
12.	**Section 2.4, Page 2-16, top paragraph:** This paragraph appears to be out of place and likely belongs at the bottom of page 2-18.	The subject paragraph describes the potential future uses of groundwater at Parcel E-2. This paragraph was included in Section 2.4 to be consistent with EPA guidance and similar statements in the ROD for Parcel C.
13.	**Section 2.6, Page 2-25, second sentence:** Items 2, 3 and 4 seem to contradict the discussion on page 2-24 regarding groundwater impacts by COPECs.	The subject sentence was revised to clarify, consistent with the RI/FS Report, that the potential hot spots were identified in the northern and central portions of the Parcel E-2 Landfill. These potential hot spots are distinct from the potential principal threat waste identified at the PCB Hot Spot Area (after the Phase 1 removal action). This potential principal threat waste is discussed in the second paragraph of Section 2.6, and is the area identified in Section 2.5.3 (on page 2-24).
14.	**Table 5, Page 2-28:** Suggest clarifying the Notes to state "The **basis (risk-based or ambient level)** for the remediation goals is presented in Sections 7 and 9 of the RI/FS Report.	Table 5 was revised as requested.
15.	**Table 6, Page 2-28:** Suggest clarifying the Notes to state "The **basis (risk-based)** for the remediation goals is presented in Sections 7 and 9 of the **Radiological Addendum to** the RI/FS Report.	Table 6 was revised as requested.
16.	**Table 7, Page 2-29:** Suggest clarifying the Notes to state "The **basis (risk-based, ambient, or regulatory level)** for the remediation goals is presented in Sections 7 and 9 of the RI/FS Report.	Table 7 was revised as requested.
17.	**Section 2.9.2, Page 2-36 fifth line:** Suggest revising as follows "The excavation areas ~~are~~ close to the Phase 1 excavation at the PCB Hot Spot Area~~ and~~, as discussed in Section 2.6, may contain principal threat wastes." As not all the excavation areas are close to the PCB Hot Spot.	Section 2.9.2 was revised as requested.

Draft Record of Decision for Parcel E-2, Hunters Point Naval Shipyard

Comments by San Francisco Department of Public Health (Amy Brownell) dated May 20, 2012 *(continued)*

Comment No.	Comment	Response
Specific Comments on Draft Record of Decision for Parcel E-2 (continued)		
18.	**Section 2.9.2, Page 2-39 bottom and top of Page 2-40:** Thank you for your detailed description of how modifications can be made in the Remedial Design so that the remedy can accommodate the intended possible future residential or industrial uses that were approved in the 2010 Redevelopment Plan Amendments. We really appreciate the detail contained in these descriptions of all the possible aspects of the future detailed design.	In response to EPA specific comment 10a, as well as the additional comment received from CCSF, the Navy has decided to change the boundary between Parcels E and E-2 so that the Shipyard South Multi-Use District is no longer located in Parcel E-2, thereby ensuring that the planned reuse for Parcel E-2 will be limited to open space. As a result, Section 2.9.2 (and other locations in the ROD) was revised to eliminate reference to potential residential use in Parcel E-2, including the subject paragraphs.
19.	**Section 2.9.2, Page 2-42, last paragraph:** Please delete the last portion of the first sentence as follows: "In addition to being set forth in the "Covenant(s) to Restrict Use of Property" and Quitclaim Deed(s) as described above, restrictions applied to specified portions of the property will be described in findings of suitability to transfer ~~and findings of suitability for early transfer~~."	Section 2.9.2 was revised as requested.
20.	**Section 2.9.2, Additional Activity Restrictions Related to Radionuclides at Parcel E-2, Page 2-45** First sentence item (1) states "and a low hydraulic conductivity layer, to provide adequate shielding against residual radioactivity" Isn't the purpose of this layer primarily to slow down water infiltration? Our understanding is that it does not have any special characteristics that make it a shield for residual radioactivity any more than the imported fill? And the imported fill isn't really being used as a shield either? Our understanding is that the surface will be scanned and all radioactive contamination will be removed from the surface, defined as the top twelve inches of existing soil. So there will be essentially no radiological risk above background for someone standing on the surface. Then the imported fill and low hydraulic conductivity layer will be installed. The purpose of these layers, in regards to radioactivity, is to make certain that humans and wildlife can not accidentally dig under these installed layers or into the "clean" 12 inches below. And there will be institutional controls that make it clear that no one should dig under these layers. So the point is that the site will be safe from a radiological perspective and we can provide assurances that no one is accidentally digging into the wrong area. Please change the wording of this sentence.	The Navy wishes to clarify that the complete statement ("*an engineered cover, consisting of clean imported fill and…a low hydraulic conductivity layer, to provide adequate shielding against residual radioactivity*") clearly indicates that the engineered cover, which consists of both a soil cover and a low hydraulic conductivity layer, provides shielding against residual radioactivity. Regarding the radiological remediation, Section 2.9.2 was revised based on comment 9 from the EPA Project Manager to state that (1) the selected remedy would include radiological screening to be performed throughout Parcel E-2 in conjunction with the proposed excavation activities; (2) radiologically contaminated soil, sediment, or debris identified during the screening process would be removed and disposed of off site; (3) final radiological surveys would be performed to demonstrate the successful removal of radiological contamination (exceeding the remediation goals) within the upper 1 foot of the excavated subgrade; and (4) radiological risk modeling would be performed to verify that residual radiological risk at the final ground surface (following installation of a demarcation layer and soil cover) is within the risk management range specified in the NCP (10^{-6} to 10^{-4}). The Navy believes that these clarifications to Section 2.9.2 adequately explain the proposed radiological remediation, and that no clarifications to the subject paragraph are necessary.

Draft Record of Decision for Parcel E-2, Hunters Point Naval Shipyard		
Comments by San Francisco Department of Public Health (Amy Brownell) dated May 20, 2012 *(continued)*		
Comment No.	**Comment**	**Response**
Specific Comments on Draft Record of Decision for Parcel E-2 (continued)		
21.	**Section 2.9.2, Additional Activity Restrictions Related to Subsurface Gas at Parcel E-2, Page 2-46** Several places in the section refer to just "the ARIC" and, despite the fact that it should be obvious to the reader since this reference is made under the subsurface gas heading, it is confusing with all the different types of ARICs defined for this and other parcels. We suggest referring to the "ARIC for soil gas" or a similar designation to distinguish it from the ARIC for radionuclides and other types of ARICs. This is especially important because there is an expectation that the ARIC for soil gas can be reduced in size over time as further data demonstrates that soil gas disappears or is remediated. We suggest that all references to "ARIC" make it clear if the document is referring to all ARICs or a specific type (e.g. soil gas, radionuclide, durable cover, etc).	Section 2.9.2 was revised to better explain the ARIC and radiological ARIC at Parcel E-2. Specifically, the text was revised to state: "*Figure 14 presents the area requiring institutional controls (ARIC) for nonradioactive chemicals, which comprises all of Parcel E-2 including a small portion of the Parcel E-2 Landfill that extends north onto property owned by UCSF (see Figure 2). Figure 14 also identifies the ARIC for radionuclides (green pattern on Figure 14; also referred to as the radiological ARIC), which consists of all radiologically impacted areas at Parcel E-2, except for sanitary sewer, storm drain, and septic sewer lines (and other radiologically impacted areas) that extend into the East Adjacent Area but are located outside of the IR Site 01/21 boundary (see Figure 3).*" The Navy does not agree that an additional "soil gas ARIC" should be defined for Parcel E-2 because the nature of the proposed activity restrictions are different than those proposed for other HPNS parcels. Specifically, as explained in the ROD, the activity restrictions related to subsurface gas are "*to ensure compliance with the substantive provisions of Cal. Code Regs. tit. 27 § 21190(a), (b), (d), (e), (f) and (g), which require that postclosure land uses be designed and maintained to protect health and safety in areas affected by landfill gas migration.*"

Draft Record of Decision for Parcel E-2, Hunters Point Naval Shipyard		
Comments by San Francisco Department of Public Health (Amy Brownell) dated May 20, 2012 *(continued)*		
Comment No.	**Comment**	**Response**
Specific Comments on Responsiveness Summary (Attachment 3 to Draft Record of Decision)		
22.	**Introduction, Page 1, third sentence:** Suggest adding the number of soil and groundwater samples.	The subject sentence was revised as requested.
23.	**Various places throughout the Responsiveness Summary (noted below)** The Navy repeats a statement "and segments of the community, represented by the SFRA and the Mayor's Hunters Point Shipyard Citizens Advisory Committee… have concurred with the preferred alternative" and in addition there are some locations where you state "CCSF DPH has reviewed and concurred with the Navy's findings" or "reviewed and approved". While we appreciate that the Navy should state, in their discussion about community acceptance, the agreement that they have from various parties, we think the use of the words "concur, concurrence and approval" in most of the contexts listed is overstating the agreement that you have obtained from SFRA or CCSF DPH. In particular, CCSF DPH is not an oversight agency of the Navy so it has no concurrence role in the CERCLA process. We do agree that we have a unique role in assisting the City Administrator's office, as the successor agency to the SFRA, and the City in reviewing and evaluating the Navy's remedies and clean-up strategies and the coordination with the Navy on future land uses. However, this puts us in the position, at most, to review and agree (or disagree) with the Navy's work. Sometimes we only review and have no comment. We would appreciate that in the revision to this responsiveness summary that the nature of our agreement be accurately stated. If we reviewed and stated that we agree with the issue then please state as such. If we reviewed and have no comment then it should be portrayed as such. The use of the word "concur" should only be used for the regulatory oversight agencies. The use of the word "approve" should only be used if we specifically say that we approve of an issue. "Agree" and "agreement" seem to be better words for most situations where we agree with the Navy. We noted this issue on pages 2, 8, 10, 11, 22, 29, 41, 46, 51, 59, 63, 76, 81, 97 and 105 of the responsiveness summary.	The responsiveness summary was revised as requested.

Draft Record of Decision for Parcel E-2, Hunters Point Naval Shipyard

Comments by San Francisco Department of Public Health (Amy Brownell) dated May 20, 2012 *(continued)*

Comment No.	Comment	Response
Specific Comments on Responsiveness Summary (Attachment 3 to Draft Record of Decision) (continued)		
24.	**Issue 4, Page 4** Where cover is discussed, expand to explain the components of the elements of the cover remedy: A geosynthetic liner, a geocomposite drainage layer, two feet of clean fill, over at least 2 (or 2.5?) feet of clean soil that was put on as part of the interim cover. Further, add the other barrier components of the remedy designed to protect the public and the environment: revetment, below-grade groundwater barrier system, landfill gas barrier wall and extraction and monitoring wells, and anything else. This will make the statement that the "barrier will protect the public" more substantial.	The subject sentence was revised to state: "*The ~~cover component of the~~ containment remedy selected in the ROD ~~is~~ includes a surface cover and a below-ground barrier that will protect the public from exposure to contaminated soil and groundwater.*" The Navy does not believe that further technical terminology (such as, geosynthetic liner and geocomposite drainage layer) is appropriate for the responsiveness summary. The Navy wishes to clarify that, in response to comments received from other reviewers, Section 2.9.2 of the ROD was revised to better describe the elements of the cover remedy.
25.	**Issue 6**, **page 6** Suggest last bullet further explain what is involved in inspecting and maintaining the "cover." Does this mean soil cover inspection, liner inspection, drainage system inspection, barrier wall inspection, extraction well inspection, etc?	As described in the paragraph following the last bullet: "*The long-term monitoring and maintenance program will be detailed in the post-closure operation and maintenance plan for Parcel E-2, and submitted for review and approval by EPA, DTSC and the Water Board in conjunction with the remedial design.*" The Navy does not believe that it is necessary or appropriate to specify details regarding the future inspection and maintenance program in either the responsiveness summary or ROD.
26.	**Various Comments from DFG-OSPR regarding burrowing animals and their subsequent letter on this issue** If the Navy determines, in response to DFG-OSPR concerns, that addressing the burrowing animal issue will require a slightly different design (a rock layer?) or additional long term oversight and maintenance please remember to include these additional elements in description of the remedy in the ROD (if needed) and more importantly in the Remedial Design and long term O&M documents and factor these elements into the cost of the remedy.	Please refer to the Navy's responses to CDFG's comments on the Draft ROD.
27.	**Page 38, Navy response to DFG-OSPR specific comment 2** While the 270 year life of the geomembrane is impressive, we note that given that these remedies will most likely need to be in place in perpetuity, this means that the geomembrane will need to be replaced every couple of centuries and this fact should be accounted for in the remedial design and the cost.	Attachment 4 identifies several requirements pertinent to the question of post-closure duration, specifically as it pertains to the requirement to limit infiltration (which is the primary function of the geomembrane): • Post-closure water entry: Cal. Code Regs., tit. 22 § 66264.310(a)(1). This section requires that the final cover be designed to prevent the downward entry of water into the closed landfill throughout a period of at least 100 years.

Draft Record of Decision for Parcel E-2, Hunters Point Naval Shipyard

Comments by San Francisco Department of Public Health (Amy Brownell) dated May 20, 2012 *(continued)*

Comment No.	Comment	Response
Specific Comments on Responsiveness Summary (Attachment 3 to Draft Record of Decision) (continued)		
27. *(cont.)*	*(see above)*	• Post-closure care: Cal. Code Regs., tit. 22 § 66264.310(b)(1). This section requires that the integrity and effectiveness of the final cover be maintained throughout the post-closure period. This section also incorporates by reference Cal. Code Regs., tit. 22 § 66264.117(b)(2)(B), which requires that the post-closure care period be extended if necessary to protect human health and the environment. • Post-closure care period: Cal. Code Regs., tit. 27 § 20950(a). This section requires that the post-closure maintenance period shall extend as long as the wastes pose a threat to water quality. • Post-closure maintenance: Cal. Code Regs., tit. 27 § 21180(a). This section requires post-closure maintenance and monitoring of the landfill for no less than 30 years following closure. The predicted half-life (270 years) of a HDPE geomembrane well exceeds the established duration for preventing downward entry of water into the closed landfill. This information is considered adequate to support an evaluation of the remedial alternatives; and, consistent with the final NCP (55 Fed. Reg. 8817, March 8, 1990), additional details will be developed in the RD. Furthermore, Cal. Code Regs., tit. 27 § 20950(a) requires that post-closure maintenance (including for maintenance of the final cover) extend as long as the wastes pose a threat to water quality. The 30-year post-closure maintenance period was used for cost-estimating purposes in the RI/FS Report. Per Cal. Code Regs., tit. 27 § 20950(a) and tit. 22 § 66264.117(b)(2)(B), the Navy will maintain and monitor the remedy for as long as the wastes pose a threat to water quality and as long as necessary to protect human health and the environment. In the absence of site-specific modeling to predict reductions in chemical concentrations in groundwater over time, the Navy analyzed the sensitivity of the cost estimate against varying lengths of the post-closure maintenance period. The results of the sensitivity analysis (for Alternatives 3A and 3B) were presented in Appendix S of the RI/FS Report (Exhibit A to the responses to comments provided by the law office of Michael Lozeau), and show that extending the post-closure

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Comments by San Francisco Department of Public Health (Amy Brownell) dated May 20, 2012 *(continued)*		
Comment No.	**Comment**	**Response**
Specific Comments on Responsiveness Summary (Attachment 3 to Draft Record of Decision) (continued)		
27. *(cont.)*	*(see above)*	maintenance period beyond 30 years does not substantially change the calculated present values for Alternatives 3A or 3B. Specifically, the percent differences between a 30-year and 120-year post-closure maintenance period are less than 14 percent, or well within the accuracy prescribed in EPA guidance (+50/-30 percent) (EPA, 1988). This conclusion can be explained by the present value analysis used in the cost estimate. As explained in EPA guidance for FS cost estimates (EPA, 2000): "*This standard methodology allows for cost comparisons of different remedial alternatives on the basis of a single cost figure for each alternative. This single number, referred to as the present value, is the amount needed to be set aside at the initial point in time (base year) to assure that funds will be available in the future as they are needed, assuming certain economic conditions.*" The Navy believes that a 30-year post-closure maintenance period is a reasonable basis to evaluate the remedial alternatives in accordance with the NCP and EPA guidance based on (1) the results of this sensitivity analysis, (2) the prescribed accuracy for FS cost estimates (+50/-30 percent), and (3) the absence of data to predict how long wastes will pose a threat to water quality.

Draft Record of Decision for Parcel E-2, Hunters Point Naval Shipyard

Additional Comments by San Francisco Department of Public Health (Amy Brownell) dated May 29, 2012

Comment No.	Comment	Response
1.	The San Francisco Department of Public Health and its consultants, Treadwell and Rollo, have closely monitored the Regulatory Agencies' oversight and the Navy's investigation and cleanup of the Hunters Point Shipyard including Parcel E-2 for the past 19 years. We have reviewed many technical documents written about Parcel E-2. Based on our review and involvement in this process, it is our opinion that the Navy has adequately studied and understands the nature and extent of the contamination on Parcel E-2 and that the selected combination of remedial alternatives listed in the Parcel E-2 draft Record of Decision are, in our technical judgment, feasible and follow accepted scientific understanding and industry standards for remediating the contamination at Parcel E-2. We also support the Navy's evaluation of the nine CERCLA criteria, including community acceptance, and, as described in their responsiveness summary, we believe the Navy has adequately assessed and evaluated the chosen combination of remedies against those criteria.	Comment acknowledged.
2.	**Section 2.4, Page 2-15, third sentence** states "The selected remedy will allow for potential residential use in this 0.42-acre area if it is demonstrated that soil contaminants do not exceed levels established elsewhere at HPNS for residential reuse, or if any contaminants that exceed those established levels are properly contained by the remedy." And then **Section 2.9.2, Land Use Restrictions, Pages 2-43 and 2-44** states: *"A small area (about 0.42 acres) in the East Adjacent Area is designated as part of the Shipyard South Multi-Use District, which includes potential recreational, industrial, and residential reuse. Parcel E-2 shall be restricted to open space and recreational uses, unless written approval for other uses is granted by the FFA signatories. In addition, the following land uses are specifically prohibited in all Parcel E-2 areas, unless written approval for such uses is granted by the FFA signatories (e.g., in the small area designated as Shipyard South Multi-Use District), in accordance with the Covenant(s) to Restrict Use of the Property, Quitclaim Deed(s), LUC RD report, and Parcel E-2 RMP, if applicable:*	In response to EPA specific comment 10a, as well as this additional comment received from CCSF, the Navy has decided to change the boundary between Parcels E and E-2 so that the Shipyard South Multi-Use District is no longer located in Parcel E-2, thereby ensuring that the planned reuse for Parcel E-2 will be limited to open space. As a result, Sections 2.4 and 2.9.2 (and other locations in the ROD) were revised to eliminate reference to potential residential use in Parcel E-2.

Draft Record of Decision for Parcel E-2, Hunters Point Naval Shipyard

Additional Comments by San Francisco Department of Public Health (Amy Brownell) dated May 29, 2012 *(continued)*

Comment No.	Comment	Response
2. *(cont.)*	a. *A residence, including any mobile home or factory built housing, constructed or installed for use as residential human habitation.* b. *A hospital for humans.* c. *A school for persons under 21 years of age.* d. *A daycare facility for children.* e. *Any permanently occupied human habitation, including those used for commercial or industrial purposes.* *For the small area designated as part of the Shipyard South Multi-Use District, any deviation from the restricted land uses specified above shall be described in writing and reference the appropriate engineering and institutional controls that will be relied upon to protect human health and the environment. This document must be submitted to and approved in writing by the FFA signatories in accordance with procedures (including dispute resolution procedures) and timeframes that will be set forth in the OMP and LUC RD report."* And then, as we noted in our previous comment letter dated May 20, 2012 on this subject, **Section 2.9.2, Page 2-39 bottom and top of Page 2-40** contain a detailed description of how modifications can be made in the Remedial Design so that the remedy can accommodate the intended future residential or industrial uses. We note that the Navy is responsible for the Remedial Design and implementation of the remedy to support the intended future uses at the site and they have described in detail how the modifications can be made during the design process to accommodate the intended future uses. We also note under the terms of the Conveyance Agreement that the Navy is responsible for offering the property to the City, as the successor agency to the San Francisco Redevelopment Agency, in a condition suitable for its intended use. Therefore, we request that the Navy, over the next several years of writing their Remedial Design and Remedial Action Work Plan documents and subsequent installation of the remedy, undertake the necessary steps and additional documentation to remove these use restrictions on the 0.42 acre	*(see above)*

Draft Record of Decision for Parcel E-2, Hunters Point Naval Shipyard

Additional Comments by San Francisco Department of Public Health (Amy Brownell) dated May 29, 2012 *(continued)*

Comment No.	Comment	Response
2. *(cont.)*	area of the Shipyard South Multi-Use District. We understand if the Navy needs to keep the wording on these restrictions in the ROD in order to complete their ROD in a timely manner. However, we are making this request for the Navy: 1) to conduct the additional work; 2) write the appropriate documents; and 3) obtain Regulatory Agency approval; to remove the residential use restrictions in this small 0.42 acre area concurrent with the several years of work needed to design and install the remedies.	*(see above)*

Draft Record of Decision for Parcel E-2, Hunters Point Naval Shipyard

Comments by Arc Ecology (Saul Bloom) dated May 15, 2012

Comment No.	Comment	Response
Introduction		
--	Let me begin by both acknowledging and thanking the Navy and the US Environmental Protection Agency for their support and cooperation in providing an extension for the preparation of our Parcel E2 Draft ROD comments. I would like to especially acknowledge the Navy's cooperation with regard to providing a site visit for our contractors this coming Thursday May 17, with a tour of the Hunters Point Shipyard's Parcel E2. This is most helpful. Records of Decision under CERCLA are considered to be both technical as well as legal documents. Thus Arc Ecology would be remiss were we not to provide commentary on both aspects of the document. Arc Ecology has received numerous inquiries from Bayview Hunters Point (BVHP) community members regarding the issues of the Presumptive Remedy discussed in the ROD and Environmental Justice as it pertains to the ROD. To address those questions we asked our legal counsel Lippe Gaffney Wagner LLP (LGW) to review the ROD in light of those two specific concerns. Attached herein is a copy of LGW's review and report to Arc Ecology. I have also attached a public record comment on the Parcel E2 Remedial Investigation and Feasibility Study from Michael Lozeau from 2007. Mr. Lozeau is currently in practice in Oakland at the law firm of Lozeau Drury. He is the former Executive Director of San Francisco Baykeeper and the former Director of the Stanford University Environmental Law and Justice Clinic. His comments, as you had seen previously, echo the concerns raised by LGW and is included to demonstrate that the analysis we present is shared by others. I would like to state for the record that these are not "lawyer letters" in the colloquial meaning. We are providing this material to the Navy in a friendly fashion to provide feedback on the use of the Presumptive Remedy and the inclusion of Environmental Justice to inform the production of the future final ROD, and the remedial program to follow.	Regarding the 2007 comments from Mr. Lozeau, the Navy prepared written responses to each of Mr. Lozeau's comments on the Draft RI/FS[5] Report and associated Radiological Addendum. These responses are provided in Appendix S of the Final RI/FS Report and Appendix E of the Radiological Addendum to the RI/FS Report. The Navy has prepared written responses to comments provided by Arc Ecology's legal counsel (Lippe Gaffney Wagner LLP), and these responses are provided on the following pages. In developing these responses, the Navy determined that many of the concerns raised in the current letter from Lippe Gaffney Wagner LLP are identical to those raised by Mr. Lozeau in his comments on the Draft RI/FS Report and associated Radiological Addendum. As a result, the Navy relied upon the previous responses to Mr. Lozeau in responding to the current comments from Lippe Gaffney Wagner LLP where appropriate. As described in the response to EPA general comment 1, the Navy understands and supports EPA's decision to solicit input from the HPNS TAG reviewers. The Navy has received and agreed to a request from EPA to delay the submittal of the Draft Final ROD until September 10, 2012. The delay will allow time for the Navy to address comments and incorporate input received from the HPNS TAG reviewers (which are anticipated to be received by August 10, 2012).

[5] Acronyms and abbreviations are summarized at the end of this attachment.

Draft Record of Decision for Parcel E-2, Hunters Point Naval Shipyard		
Comments by Arc Ecology (Saul Bloom) dated May 15, 2012 *(continued)*		
Comment No.	**Comment**	**Response**
Introduction (continued)		
--	Toward that end, and consistent with Craig Cooper of the EPA Region 9's comments on the Parcel E2 Draft ROD, Arc Ecology will be providing under separate cover and in a timely fashion our independent technical review. Finally and again for the record we would like to state that funds for these comments were provided by the California Wellness Foundation and that no US EPA TAG monies were expended in their creation or Arc Ecology's role in managing the legal review. Thank you for the opportunity to comment on the Parcel E2 Record of Decision.	*(see above)*
Comments by Lippe Gaffney Wagner LLP (Cathy D. Lee) dated May 15, 2012		
1.	As per your request, this letter provides the summary of LGW's review of the Draft Record of Decision (ROD) for Parcel E-2, Hunters Point Naval Shipyard as regards the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and respective Environmental Justice Guidances. Summary of Comments For the reasons explained further below, we believe the ROD suffers from the following deficiencies: 1. The Navy did not adequately characterize the waste in the Parcel E-2 landfill in a manner consistent with the requirements of CERCLA. 2. The ROD did not adequately describe how its proposed remedy is cost-effective as the Navy did not take into account the actual costs of maintenance and monitoring of the landfill cap for as long as necessary to protect human health and the environment in a manner consistent with the requirements of CERCLA and other applicable regulations. 3. The Navy did not adequately address environmental justice concerns during the remedy selection process.	The Navy does not agree with the reviewer's assertions that the ROD for Parcel E-2 is deficient, and believes that the information contained in the administrative record adequately supports the Navy's findings as presented in the Draft ROD. Please refer to the responses to Lippe Gaffney Wagner LLP's specific comments on the Draft ROD. Specifically: • The Navy's response to Lippe Gaffney Wagner LLP's specific comment 2 addresses concerns regarding landfill characterization. • The Navy's response to Lippe Gaffney Wagner LLP's specific comment 3 addresses concerns regarding the cost-effectiveness of the selected remedy. • The Navy's response to Lippe Gaffney Wagner LLP's specific comment 4 addresses concerns regarding environmental justice.

Draft Record of Decision for Parcel E-2, Hunters Point Naval Shipyard

Comments by Lippe Gaffney Wagner LLP (Cathy D. Lee) dated May 15, 2012 *(continued)*

Comment No.	Comment	Response
2.	II. The Navy Did Not Adequately Characterize the Waste in the Parcel E-2 Landfill. Based upon our review, since placing the Hunters Point Naval Shipyard on the National Priorities List (NPL) under CERCLA, the Navy appears to have been predisposed to capping the landfill portion of Parcel E-2 in lieu of complete excavation and offsite disposal of the waste contained therein. The Navy's strong preference for capping the landfill seems to have ultimately led to its selection of containment as the proposed final, permanent remedy. ROD, pg. 2-36. However, the Navy's remedy selection process and the ROD documenting the remedy selection are flawed because the Navy did not adequately characterize the waste in the Parcel E-2 landfill, which is a legal prerequisite to selecting the remedy under CERCLA, the National Contingency Plan (NCP), and EPA's "Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA." a. Applicable Law Pursuant to CERCLA section 105, the NCP establishes procedures and standards for responding to releases of hazardous substances, pollutants, and contaminants. Based on the NCP, the Remedial Investigation/Feasibility Study process is comprised of the following phases: (1) Scoping, (2) Site characterization, (3) Development and screening of alternatives, and (4) Treatability investigations. See 40 C.F.R. § 300.430(d)-(e). Site characterization is comprised of four activities: (1) conducting field investigation, (2) defining the nature and extent of contamination (waste types, concentrations, distributions), (3) identifying federal/state chemical and location specific applicable or relevant and appropriate requirements (ARARs) and (4) conducting baseline risk assessment. See 40 C.F.R. § 300.430(d)(2). Thus, the NCP requires that the Navy conduct a site characterization which assesses the general characteristics of the waste, including quantities, state, concentration, toxicity, propensity to bioaccumulate, persistence, and mobility. 40 C.F.R. § 300.430(d)(2)(iii).	The Navy believes that the information contained in the administrative record demonstrates that the Parcel E-2 Landfill was adequately characterized to support an informed risk management decision in accordance with the NCP and pertinent EPA guidance. Further, the Navy believes that it has properly developed and evaluated the remedial alternatives for Parcel E-2 in accordance with the NCP and pertinent EPA guidance. The reviewer has identified several of the general legal requirements in CERCLA and the NCP that apply to site characterization and the evaluation and selection of remedial actions. The Navy has complied with them as documented in the RI/FS, Proposed Plan, and ROD. However, the reviewer fails to address the important role that EPA's presumptive remedy guidance (EPA, 1996) plays in evaluating site characterization at military landfills. As described in EPA's directive titled "Presumptive Remedies: Policy and Procedures" (EPA, 1993), which is another pertinent guidance for evaluating the presumptive remedy at landfills, presumptive remedy approaches are designed to accommodate a wide range of site-specific circumstances; and the overall goal of the presumptive remedy approach is to focus data collection efforts and reduce the technology evaluation phase for certain categories of sites. Section 3 of the RI/FS Report (ERRG and Shaw, 2011) details the previous environmental investigations performed in and around the Parcel E-2 Landfill including (1) preliminary assessment and investigation in 1984 and 1987, respectively; (2) two separate phases of an RI from 1988 to 1996; and (3) three supplemental data gaps investigations in 2002. During these investigations, the Navy installed 28 soil borings and 18 monitoring wells and excavated 25 test pits within the Parcel E-2 Landfill to evaluate the nature and extent of contamination. The previous environmental investigations were developed in consultation with the EPA, DTSC, Water Board, and CCSF DPH. As demonstrated by the approval of the Final RI/FS Report by the EPA, DTSC, Water Board, and CCSF DPH, the investigations at Parcel E-2 have satisfied the regulatory stakeholders and have provided adequate data to support an informed risk management decision. When the Navy began preparing the RI/FS Report in 2004, the first step involved evaluating existing site data and reviewing pertinent EPA guidance

Draft Record of Decision for Parcel E-2, Hunters Point Naval Shipyard

Comments by Lippe Gaffney Wagner LLP (Cathy D. Lee) dated May 15, 2012 *(continued)*

Comment No.	Comment	Response
2. *(cont.)*	The EPA's Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA reiterates the same requirements as the NCP. The guidance document requires that data on source characteristics be analyzed to describe the source location; the type and integrity of any existing waste containment; and the types, quantities, chemical and physical properties, and concentrations of hazardous substances found. U.S. Environmental Protection Agency (EPA),1988. "Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA." Office of Solid Waste and Emergency Response (OSWER) Directive 9355.3-01 and -02. EPA/540G89/004. The guidance document also requires that the actual and potential magnitude of releases from the source, as well as the mobility and persistence of source contaminants, be evaluated. Id. In sum, CERCLA, the NCP, and the EPA guidance document all require that waste in the Parcel E-2 landfill be characterized to determine quantities, state, concentration, toxicity, propensity to bioaccumulate, persistence, and mobility. By using the information gained from the site characterization, the ROD must also describe how the selected remedy is protective of human health and the environment, explaining how the remedy eliminates, reduces, or controls exposures to human and environmental receptors. 40 C.F.R. § 300.430(f)(5)(ii)(A). b. The ROD's Remedy Selection Relies on Inadequate Characterization of the Waste in the Parcel E-2 Landfill. In spite of the requirements set forth above in Part II.a., the Navy did not <u>fully</u> characterize the waste in the Parcel E-2 landfill to determine quantities, state, concentration, toxicity, propensity to bioaccumulate, persistence, and mobility. The ROD confirms this conclusion stating that a full characterization was not necessary or appropriate for selecting a remedy for the Parcel E-2 landfill: *Based on previous investigations and removal actions, the sources and extent of the remaining contamination in soil, sediment, landfill gas, and groundwater have been characterized adequately to select an appropriate remedy. This determination is consistent*	to develop a preliminary list of remedial alternatives for Parcel E-2. Based on the review, the Navy determined that (1) conditions at the Parcel E-2 Landfill support use of the presumptive containment remedy (EPA, 1996), and (2) conditions at the Panhandle Area, East Adjacent Area, and Shoreline Area do not support use of the presumptive containment remedy but, consistent with the streamlined approach outlined in the NCP preamble (55 Fed. Reg. 8704-8705, March 8, 1990) and in EPA RI/FS guidance (EPA, 1988), support evaluation of remedial alternatives focused on containment and excavation. The Navy consulted with the EPA, DTSC, Water Board, and CCSF DPH during this initial stage and, based on their input and input from the community, determined that complete removal of the Parcel E-2 Landfill should also be evaluated as one of the remedial alternatives (in addition to one or more containment alternatives). This approach is consistent with EPA's directive regarding presumptive remedies (EPA, 1993), which states that "*there may be unusual circumstances (such as, complex contaminant mixtures, soil conditions, or extraordinary State and community concerns) that may require the site manager to look beyond the presumptive remedies for additional (perhaps more innovative) technologies or remedial approaches.*" The information contained in the RI/FS Report demonstrates that Parcel E-2 is characterized adequately to support an evaluation of the focused set of remedial alternatives developed in consultation with EPA, DTSC, Water Board, and CCSF DPH. In addition, information contained in the RI/FS Report supports the use of the presumptive containment remedy for the Parcel E-2 Landfill and explains the relative risks of that option compared to complete excavation. The Navy considered and addressed concerns raised about the site characterization and remedial alternatives in the draft and draft final versions of the RI/FS Report, public review and comment upon those reports, and Navy responses to those comments. For example, the Navy solicited input from community groups, including Arc Ecology, throughout its preparation of the RI/FS Report. In comments submitted on the draft and draft final versions of the RI/FS Report, Arc Ecology did not express concerns with the adequacy of the Navy's characterization efforts at Parcel E-2. To the contrary, Arc

Draft Record of Decision for Parcel E-2, Hunters Point Naval Shipyard

Comments by Lippe Gaffney Wagner LLP (Cathy D. Lee) dated May 15, 2012 *(continued)*

Comment No.	Comment	Response
2. *(cont.)*	*with EPA guidance for CERCLA landfills, which presents a specialized RI/FS process intended to improve and accelerate the site characterization and remedy evaluation process and to ensure consistent evaluation of remedial alternatives at similar sites. This process, which was applied to the Parcel E-2 Landfill, is based on the rationale that the unique characteristics of landfills (such as the presence of large volumes of municipal wastes frequently co-disposed with industrial wastes) limit the selection of practicable remedial alternatives. Consistent with EPA guidance, further characterization of solid waste is not necessary or appropriate for selecting a remedy for the Parcel E-2 Landfill. In addition, characterization efforts in the East Adjacent, Panhandle, and Shoreline Areas have provided sufficient data to evaluate potential risks to humans and wildlife because past sampling locations have focused on the most likely contaminant sources (based on a comprehensive review of historic aerial photographs and any visual evidence of contamination), to the extent practical.* ROD, pg. 2-12 [emphasis added].	Ecology's first comment on the draft RI/FS Report stated that the "*study is well organized with copious information provided in the tables, figures, appendices, and list of references that thoroughly document the results so far of the remedial investigation.*" Comments received from the law office of Mr. Lozeau on the Draft RI/FS Report and associated Radiological Addendum expressed numerous concerns regarding site characterization and the remedial alternatives which were very similar to those posed in these comments. The Navy addressed each comment posed by Mr. Lozeau and these previous responses are contained in the CERCLA administrative record for Parcel E-2. The Navy's responses to Mr. Lozeau's comments on these issues in the RI/FS report are hereby incorporated by reference into this response. Appendix S of the RI/FS Report provides all comments received on the RI/FS report and the Navy's associated responses.
	The Navy's approach to characterizing the waste in the Parcel E-2 landfill is perplexing, especially in light of the historical disposal of a variety of military, industrial, and unknown hazardous wastes. The Navy operated the Hunters Point Annex as a shipbuilding and repair facility from 1941 until 1976. During that time, the Navy disposed of various shipyard wastes in the landfill, including radioluminescent devices (primarily containing radium-226) and wastes from decontamination of ships used in atomic testing. Final Remedial Investigation/Feasibility Study (RI/FS), p. 8-6. Additionally, between 1976 and 1986, the Navy leased most of the shipyard to Triple A, a private ship-repair company. Triple A allegedly disposed of industrial debris, sandblast waste, oily industrial sand, and asphalt over an area of approximately 5 acres along the shoreline of Parcel E-2. RI/FS, p. 8-7, 8-8. In addition, Triple A allegedly stored unlabeled, deteriorating, uncovered drums (with their contents exposed to the elements) on Parcel E-2. Id. Also, waste fuel and waste oil containing PCBs were used at the Parcel E-2 landfill as dust suppressants. Id.	As described in the cited passage, and detailed further in the RI/FS Report, the Navy relied upon and complied with CERCLA, the NCP, and pertinent EPA guidance to evaluate the nature and extent of contamination at the Parcel E-2 Landfill and to develop an appropriate range of remedial alternatives. For example, EPA established a decision framework for determining whether the containment presumptive remedy applies to a specific military landfill (EPA, 1996). The Navy evaluated the Parcel E-2 Landfill relative to this decision framework in Section 8.2.3 of the RI/FS Report and determined that the containment presumptive remedy applies to the Parcel E-2 Landfill. The reviewer did not comment on the specific findings of the analysis in Section 8.2.3 of the RI/FS Report, which concludes that the contents of the Parcel E-2 Landfill meet the municipal-type waste definition and that no "high hazard" military wastes are present. The information contained in the RI/FS Report demonstrates that Parcel E-2 is characterized adequately to support an evaluation of the focused set of remedial alternatives developed in consultation with EPA, DTSC, Water Board, and CCSF DPH.

Draft Record of Decision for Parcel E-2, Hunters Point Naval Shipyard

Comments by Lippe Gaffney Wagner LLP (Cathy D. Lee) dated May 15, 2012 *(continued)*

Comment No.	Comment	Response
2. *(cont.)*	Moreover, in August 2000, a surface brush fire of unknown origin occurred on the Parcel E-2 landfill. The fire was thought to have been extinguished the same day, but subsurface fire continued for many weeks. In order to fully extinguish the subsurface fire, the Navy placed a temporary cap over the landfill (completed in early 2001). In 2002, the Navy detected migration of landfill gas, comprised of methane and volatile organic compounds (VOCs). In response, the Navy built a barrier wall and trench to prevent offsite migration and installed an active extraction system to extract and treat methane and VOCs. The experience of the 2000 fire highlights the danger posed by hazardous, volatile wastes that remain under the current temporary cap, much of which will continue to remain under a more "permanent" cap in perpetuity. Without an adequate characterization of the waste in the Parcel E-2 landfill, there remains the possibility of another fire which poses further threats to human health and the environment, especially to the nearby Bayview-Hunters Point community.	Table 1 in the Draft ROD briefly describes the construction of the interim landfill cap and landfill gas control system, and more detailed information regarding these actions is presented in the RI/FS Report. The available information demonstrates, contrary to the reviewer's assertion, that (1) the interim landfill cap limits oxygen from entering the landfill, thereby preventing more fires from occurring under the capped area, and (2) the interim landfill gas control system is properly controlling potentially hazardous concentrations of landfill gas. The Navy's selected cover remedial action will continue to prevent oxygen from entering the landfill and prevent more fires.
	c. It is our opinion that the Navy and Regulators engaged in compiling the ROD incorrectly applied the EPA's Guidance Applicable to Municipal-Type Landfills to the Parcel E2 landfill. As discussed in full in Part II.b., the ROD confirms that the Navy did not conduct a full characterization of the waste in the landfill by relying on the EPA's guidance on "Application of the CERCLA Municipal Presumptive Remedy to Military Landfills." U.S. EPA, 1996, "Application of the CERCLA Municipal Presumptive Remedy to Military Landfills," OSWER Directive 9355.067FS, EPA/540/F-96/020 (EPA Presumptive Application). EPA Presumptive Application provides that the EPA's presumptive remedy for a typical military landfill is containment. Id. The ROD then concludes that (1) the Parcel E-2 landfill meets all of the criteria specified in the EPA's presumptive remedy guidance, (2) the presumptive remedy for the Parcel E-2 landfill is containment, and (3) further characterization of solid waste is not necessary or appropriate for selecting a remedy for the Parcel E-2 landfill. ROD, pg. 2-12, 2-30.	The Navy strongly disagrees with the reviewer's assertion that EPA guidance was incorrectly applied to the Parcel E-2 Landfill, and believes that this assertion is based on an incomplete review of the available information. As previously discussed, EPA established a decision framework for determining whether the containment presumptive remedy applies to a specific military landfill (EPA, 1996). The Navy evaluated the Parcel E-2 Landfill relative to this decision framework in Section 8.2.3 of the RI/FS Report and determined that the containment presumptive remedy applies to the Parcel E-2 Landfill. The reviewer did not comment on the specific findings of the analysis in Section 8.2.3 of the RI/FS Report, which concludes that the contents of the Parcel E-2 Landfill meet the municipal-type waste definition and that no "high hazard" military wastes are present.

Draft Record of Decision for Parcel E-2, Hunters Point Naval Shipyard

Comments by Lippe Gaffney Wagner LLP (Cathy D. Lee) dated May 15, 2012 *(continued)*

Comment No.	Comment	Response
2. *(cont.)*	However the ROD's own description of the site contradicts the conclusion that the Parcel E-2 landfill is a run-of-the-mill military landfill. Therefore, the Navy should not apply the presumptive containment remedy the EPA has designed for municipal-type landfills for this primarily industrial, hazardous waste landfill. The EPA's presumptive remedy was intended to apply to landfills which typically contain a combination of principally municipal, and to a lesser extent hazardous waste, and not those which contain primarily industrial, military and hazardous waste. Based on the historical disposal of a variety of military, industrial, and unknown hazardous wastes to the Parcel E-2 landfill (see Part II.b.), Parcel E2 clearly does not conform to the specific criteria established by the EPA in its guidelines for applying its presumptive remedy standard. The Navy therefore incorrectly concluded that this landfill should be treated as a municipal-type landfill. ROD, pg. 2-12, 2-30. As a result it is our view that the Navy should not have relied upon the EPA Presumptive Remedy Application to limit the scope of its characterization of the Parcel E2 landfill.	*(see responses on pages 67 through 69)*
	In fact, the EPA Presumptive Application distinguishes certain military landfills from typical military landfills by recognizing the potential for a site like Parcel E-2 to contain a high percentage of industrial and hazardous waste: "some military facilities (e.g. weapons fabrication or testing, shipbuilding, major aircraft or equipment repair depots) have a high level of industrial activity compared to overall site activities. In these cases, there may be a higher proportion and wider distribution of industrial (i.e. potentially hazardous) wastes present than at other less industrial facilities." EPA Presumptive Application, pg. 3. This is precisely the case for classifying Parcel E-2 -it primarily consists of a landfill where industrial and potentially hazardous waste have been discarded from a variety of past industrial activities. Thus, the evidence shows that the Parcel E-2 landfill is not a typical municipal-type military landfill for which the presumptive remedy of containment is appropriate.	The subject comment referenced a general observation about characteristics of military landfills in the introductory portion of the guidance that begins with the statement "*most military landfills present only low-level threats with pockets of some high-hazard waste…*" (p. 3, EPA, 1996). The reviewer did not acknowledge this part of the sentence and, as previously described, did not review or comment upon the specific findings of the analysis in Section 8.2.3 of the RI/FS Report, which concludes that the contents of the Parcel E-2 Landfill meet the municipal-type waste definition and that no "high hazard" military wastes are present. The determination was made in accordance with a decision framework provided in the same EPA guidance document.

Draft Record of Decision for Parcel E-2, Hunters Point Naval Shipyard

Comments by Lippe Gaffney Wagner LLP (Cathy D. Lee) dated May 15, 2012 *(continued)*

Comment No.	Comment	Response
2. *(cont.)*	Furthermore, the unique site-specific characteristics of Parcel E-2 also support the unsuitability of applying the presumptive remedy of containment. EPA Presumptive Application states that "[s]ite-specific circumstances dictate whether a presumptive remedy is appropriate at a given site." EPA Presumptive Application, pg. 1. In this case, the Parcel E-2 landfill's proximity to the Bay, its high water table, its location in a highly seismically-active area susceptible to liquefaction, rising sea levels, and its hazardous contents are all significant site-specific circumstances that preclude the application of the presumptive remedy of containment. According to EPA Presumptive Application, the presence of high water tables, wetlands and other sensitive environments can limit the use of the containment presumptive remedy at a military landfill. EPA Presumptive Application, pg. 3. The ROD and the administrative record, however, do not account for these unique site-specific characteristics of the Parcel E-2 landfill - which render the presumptive remedy of containment both inappropriate and ineffective to fully protect the human health and environment from the environmental hazards posed by the waste in the landfill. Based on the foregoing, a full, comprehensive characterization of the nature of, and threat posed by, the wastes at the Parcel E-2 landfill should have been conducted. The characterization must thoroughly assess the general characteristics of the waste, including quantities, state, concentration, toxicity, propensity to bioaccumulate, persistence, and mobility 40 C.F.R. § 300.430(d)(2)(iii). Such characterization is necessary to assess the extent to which the release poses a threat to human health or the environment and to accurately determine the effectiveness of each alternative. Without a full characterization, the remedy selection in the ROD is problematic and is inconsistent with the requirements of CERCLA, the NCP, and the EPA guidance documents.	The Navy disagrees with the reviewer's assertion that the proximity of the Landfill Area to San Francisco Bay, among other noted site conditions, invalidates application of containment presumption. The presence of sensitive environments is identified in the EPA guidance as a practical consideration for the remedy evaluation process (see "Sensitive Environments" heading on page 3, EPA, 1996). The selected remedy for the Parcel E-2 Landfill addresses these practical considerations by: • Removing and disposing of contaminated soil in selected "hot spot" areas that contain high concentrations of non-radioactive chemicals. • Installing below-ground barriers to limit groundwater flow from the landfill to San Francisco Bay. • Building a soil cover and shoreline revetment that address potential hazards related to seismic activity and sea level rise. • Build new wetlands to replace the degraded wetlands that will be lost during the soil cover and shoreline revetment • Removing and treating landfill gas to prevent it from moving beyond the Parcel E-2 boundary. Section 2.9.2 of the ROD summarizes these proposed actions, which are described and evaluated in the Final RI/FS Report and addressed in comments on that document. In summary, the Navy believes that the information contained in the administrative record demonstrates that the Parcel E-2 Landfill was adequately characterized to support an informed risk management decision in accordance with the NCP and pertinent EPA guidance. Further, the Navy believes that it has properly developed and evaluated the remedial alternatives for Parcel E-2 in accordance with the NCP and pertinent EPA guidance.

Draft Record of Decision for Parcel E-2, Hunters Point Naval Shipyard

Comments by Lippe Gaffney Wagner LLP (Cathy D. Lee) dated May 15, 2012 *(continued)*

Comment No.	Comment	Response
3.	III. The ROD Fails to Adequately Analyze the Cost-Effectiveness of the Selected Remedy (Alternative 5) As specified in the NCP, the cost-effectiveness of a remedy is determined in two steps. First, the overall effectiveness of a remedial alternative is determined by evaluating the following three of the five balancing criteria: (1) long-term effectiveness and permanence; (2) reduction in toxicity, mobility, or volume through treatment; and (3) short-term effectiveness. 40 C.F.R. § 300.430 (f)(ii)(D). The overall effectiveness is then compared to cost in order to determine whether a remedy is cost effective. Id. A remedy is cost-effective if its costs are proportional to its overall effectiveness. Id. In assessing alternative remedial actions, various factors must be taken into account, including long-term maintenance costs. 42 U.S.C. § 9621(b)(1)(E). The NCP also requires that where, as here, a remedial action is selected which results in hazardous substances, pollutants, or contaminants remaining at the site, the remedial action must be reviewed no less often than each 5 years after the initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented. 42 U.S.C.§ 9621(c). Furthermore, the potential for future remedial action costs - if the alternative remedial action in question were to fail must be taken into account. 42 U.S.C. § 9621(b)(1)(F). Finally, the NCP requires that the ROD describe how the remedy is cost-effective, i.e., explain how the remedy provides overall effectiveness proportional to its costs. 40 C.F.R. § 300.430(f)(5)(ii)(D). The ROD asserts that the projected costs of Alternative 5 include the costs of maintaining the integrity of the landfill cap. ROD, pg. 2-41-46. The ROD incorporates the following measures to ensure that the selected remedy will continue to protect human health and the environment: 1. Implementation and maintenance actions for institutional controls, including periodic inspections and reporting requirements. ROD pg. 2-41, 2-43. 2. Land use restrictions and enforcing them. ROD pg. 2-43. 3. General activity restrictions and enforcing them. ROD pg. 2-44.	*(see the response on the following page)*

Draft Record of Decision for Parcel E-2, Hunters Point Naval Shipyard

Comments by Lippe Gaffney Wagner LLP (Cathy D. Lee) dated May 15, 2012 *(continued)*

Comment No.	Comment	Response
3. *(cont.)*	4. Additional activity restrictions related to subsurface gas. ROD pg.2-46. 5. General long-term monitoring and maintenance of the cover to ensure continued protection of human health and the environment. ROD pg. 2-46. The ROD then concludes that the selected remedy (Alternative 5) is cost effective: The selected remedy will provide high overall effectiveness proportional to its costs, as demonstrated by the improved overall effectiveness of Alternative 5 relative to Alternative 3 for a modest (approximately 10 percent) incremental cost increase. Therefore, the selected remedy is considered cost-effective. In contrast, Alternative 2 is not considered cost effective because its lower overall effectiveness (relative to Alternative 5) is accompanied by a significant incremental cost increase (over 300 percent relative to Alternatives 3, 4, and 5). ROD, pg. 2-47. Before concluding that a selected remedy is cost effective, the cost estimates for each alternative must accurately reflect the cost analysis requirements under the NCP. While the ROD asserts that the costs of long-term monitoring and maintenance are factored into the cost analysis, we question the decision to limit the estimate to a 32-year time frame. ROD pg. 2-32. From the review of the ROD and the administrative record, it is unclear how the Navy arrived at a 32-year time frame as the basis for calculating cost estimates for Alternative 5, while acknowledging that the implementation of Alternatives 5 would include monitoring and maintenance that would be performed <u>as long as is necessary to protect human health and the environment.</u> ROD pg. 2-31. Because under Alternative 5 the landfill would be capped with the hazardous waste remaining, the landfill will require perpetual monitoring and maintenance in order to protect human health and environment. It would seem appropriate therefore that the length of time be somehow linked to the estimated period contaminants of concern for the site will remain toxic.	The Navy has responded to numerous comments on the RI/FS Report that questioned the post-closure period used in developing the cost estimates for Alternatives 2, 3, 4, and 5. Comments were received from the law office of Mr. Lozeau that were very similar to those received in this letter. The Navy addressed each comment posed by Mr. Lozeau and these previous responses are contained in the administrative record. The cost estimates are detailed in Appendix R of the RI/FS Report, and the responses to comments are included in Appendix S of the RI/FS Report. Attachment 4 identifies several requirements pertinent to the question of post-closure duration: • Post-closure water entry: Cal. Code Regs., tit. 22 § 66264.310(a)(1). This section requires that the final cover be designed to prevent the downward entry of water into the closed landfill throughout a period of at least 100 years. • Post-closure care: Cal. Code Regs., tit. 22 § 66264.310(b)(1). This section requires that the integrity and effectiveness of the final cover be maintained throughout the post-closure period. This section also incorporates by reference Cal. Code Regs., tit. 22 § 66264.117(b)(2)(B), which requires that the post-closure care period be extended if necessary to protect human health and the environment. • Post-closure care period: Cal. Code Regs., tit. 27 § 20950(a). This section requires that the post-closure maintenance period shall extend as long as the wastes pose a threat to water quality.

Draft Record of Decision for Parcel E-2, Hunters Point Naval Shipyard

Comments by Lippe Gaffney Wagner LLP (Cathy D. Lee) dated May 15, 2012 *(continued)*

Comment No.	Comment	Response
3. *(cont.)*	For example, Radium painted equipment is one of the possible contaminants within the landfill. The half life of Radium 226 is in excess of 1,600 years. While we are not suggesting that it is possible or reasonable to calculate such costs over a millennia, this example does call into question the efficacy of the 32year time frame chosen to calculate the costs of Alternative 5. Another way to look at this question is that the Hunters Point Naval Shipyard was added to the National Priorities List in 1989, the expected close out date for this site is sometime before 2018. It seems somehow odd that the estimate for the ongoing maintenance of the cap is based on a period just four years longer than the amount of time the Navy needed to characterize, plan, and construct its proposed remedy. As a result, it seems the metric used is arbitrary and does not accurately reflect the actual costs of implementing and maintaining this remedy. Moreover, it is unclear whether the estimated cost of implementing and maintaining the selected remedy takes into account the costs of satisfying the statutory five-year review requirement for as long as it may be necessary. ROD, pg. 2-48. Additionally, the ROD's analysis of the cost-effectiveness of each alternative appears flawed as well because the ROD relies on an inadequate site characterization of the Parcel E-2 landfill. As discussed in full in Part II.b., the Navy did not fully characterize the waste contained in the Parcel E-2 landfill. For that reason, the ROD cannot with reasonable confidence conclude that the selected remedy is effective, let alone cost-effective, when it is unknown what type and extent of waste the proposed remedy will be effective against. Based on the foregoing, the ROD cannot adequately describe how the remedy is cost- effective. The Navy did not take into account the actual costs of maintenance and monitoring of the landfill cap for as long as is necessary to protect human health and the environment.	• Post-closure maintenance: Cal. Code Regs., tit. 27 § 21180(a). This section requires post-closure maintenance and monitoring of the landfill for no less than 30 years following closure. The 30-year post-closure maintenance period, as identified in Cal. Code Regs., tit. 27 § 21180(a) and EPA guidance for FS cost estimates (EPA, 2000), was used for cost-estimating purposes in the RI/FS Report. Per Cal. Code Regs., tit. 27 § 20950(a) and tit. 22 § 66264.117(b)(2)(B), the Navy will maintain and monitor the remedy for as long as the wastes pose a threat to water quality and as long as necessary to protect human health and the environment. In the absence of site-specific modeling to predict reductions in chemical concentrations in groundwater over time, the Navy analyzed the sensitivity of the cost estimate against varying lengths of the post-closure maintenance period. The results of the sensitivity analysis (for Alternatives 3A and 3B) were presented in Appendix S of the RI/FS Report (Exhibit A to the responses to comments provided by the law office of Michael Lozeau), and show that extending the post-closure maintenance period beyond 30 years does not substantially change the calculated present values for Alternatives 3A or 3B. Specifically, the percent differences between a 30-year and 120-year post-closure maintenance period are less than 14 percent, or well within the accuracy prescribed in EPA guidance (+50/-30 percent) (EPA, 1988). This conclusion can be explained by the present value analysis used in the cost estimate. As explained in EPA guidance for FS cost estimates (EPA, 2000): "*This standard methodology allows for cost comparisons of different remedial alternatives on the basis of a single cost figure for each alternative. This single number, referred to as the present value, is the amount needed to be set aside at the initial point in time (base year) to assure that funds will be available in the future as they are needed, assuming certain economic conditions.*" The Navy believes that a 30-year post-closure maintenance period is a reasonable basis to evaluate the remedial alternatives in accordance with the NCP and EPA guidance based on (1) the results of this sensitivity analysis, (2) the prescribed accuracy for FS cost estimates (+50/-30 percent), and (3) the absence of data to predict how long wastes will pose a threat to water quality.

Draft Record of Decision for Parcel E-2, Hunters Point Naval Shipyard

Comments by Lippe Gaffney Wagner LLP (Cathy D. Lee) dated May 15, 2012 *(continued)*

Comment No.	Comment	Response
4.	IV. The Navy and the EPA Failed to Assess and Consider Environmental Justice Concerns During the Remedy Selection Process. a. Executive Order 12898 on Environmental Justice and Agency Guidance Documents In 1994, Executive Order 12898 ("EO 12898") "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," directed all federal agencies to implement environmental justice policies. Exec. Order No. 12898, 59 Fed. Reg. 32 (Feb. 16, 1994). These policies were designed to address the disproportionate environmental effects of federal programs and policies on minority and low-income populations. EO 12898 imposes the following requirements on all federal agencies: 1. A Federal agency must, where practicable and appropriate, collect, maintain, and analyze information assessing and comparing environmental and human health risks borne by populations identified by race, national origin, or income, and 2. To the extent practicable and appropriate, Federal agencies must then use this information to determine whether their activities have disproportionately high and adverse human health or environmental effects on minority populations and low-income populations. *Exec. Order No. 12898, 59 Fed. Reg. 32 (Feb. 16, 1994).* The EPA's guidance on environmental justice provides a roadmap on how the EPA can incorporate environmental justice concerns into the decision making process. In July 2010, the EPA released "EPA's Action Development Process: Interim Guidance on Considering Environmental Justice in the Development of an Action," which provides ways to incorporate the needs of overburdened neighborhoods into decision-making, scientific analysis, and rule development. U.S. EPA, 2010, "EPA's Action Development Process: Interim Guidance on Considering Environmental Justice in the Development of an Action."("EJ in Rulemaking Guidance"). Since the EPA and the Navy jointly selected the remedy for Parcel E-2, the	*[The Navy and EPA are working to develop a response to this comment.]*

Draft Record of Decision for Parcel E-2, Hunters Point Naval Shipyard

Comments by Lippe Gaffney Wagner LLP (Cathy D. Lee) dated May 15, 2012 *(continued)*

Comment No.	Comment	Response
4. *(cont.)*	agencies were required to consider the environmental justice policies provided in the EPA's EJ in Rulemaking Guidance. In the guidance document, the EPA defines "environmental justice" as the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies: > Fair Treatment means that no group of people should bear a disproportionate burden of environmental harms and risks, including those resulting from the negative environmental consequences of industrial, governmental, and commercial operations or programs and policies. > Meaningful Involvement means that: 1) potentially affected community members have an appropriate opportunity to participate in decisions about a proposed activity that will affect their environment and/or health; 2) the public's contribution can influence the regulatory agency's decision; 3) the concerns of all participants involved will be considered in the decision-making process; and 4) the decision-makers seek out and facilitate the involvement of those potentially affected. > *EJ in Rulemaking Guidance, at pg. 3.* The EPA has recognized certain factors in assessing whether disproportionate impacts on minority, low-income, or indigenous populations exist prior to, or are created by, the agency's action: (1) Proximity and exposure to environmental hazards, (2) Susceptible populations, (3) Unique exposure pathways, (4) Multiple and cumulative effects, (5) Ability to participate in the decision- making process, and (6) Physical infrastructure. EJ in Rulemaking Guidance, at pg. 7-9. Of particular concern to the community near Parcel E-2 is the first factor, proximity and exposure to environmental hazards (disproportionate public health and environmental effects can be related to a community's or population's differential proximity and exposure to environmental hazards) and the fourth factor, multiple and	*[The Navy and EPA are working to develop a response to this comment.]*

Draft Record of Decision for Parcel E-2, Hunters Point Naval Shipyard

Comments by Lippe Gaffney Wagner LLP (Cathy D. Lee) dated May 15, 2012 *(continued)*

Comment No.	Comment	Response
4. *(cont.)*	cumulative effects (minority, low-income, and indigenous populations are likely to suffer from multiple environmental hazards, including industrial facilities, landfills, transportation-related air pollution, poor housing, leaking underground tanks, pesticides, and incompatible land uses.) Id. The Navy is also required to take environmental justice issues into account under both EO 12898 and the Department of Defense (DoD) manuals and policies. Recently, on March 9, 2012, the Acting under Secretary of Defense signed DoD Manual (DoDM) 4715.20, Defense Environmental Restoration Program (DERP) Management. The Manual implements policy, assigns responsibilities, and provides guidance and procedures for conducting environmental restoration at DoD facilities and managing the DERP. DoDM 4715.20, at p. 1. Most relevantly, the Manual implements EO 12898 by requiring community relations plan (CRP) (40 C.F.R. 300.430(c)(2)(ii)) to address applicable requirements of EO 12898. Id. at p. 82. In sum, pursuant to EO 12898 and the applicable guidance documents, the Navy and the EPA are required to assess and consider the disproportionate impacts of the selected remedy on the low income and minority populations near Parcel E-2. However, as discussed below, the ROD and the administrative record provide no evidence that the Navy or the EPA assessed and/or considered the disproportionate impacts to this environmental justice community of choosing Alternative 5 as the proposed remedy for Parcel E-2. b. The Hunters Point Shipyard Community is an Environmental Justice Community Which Suffers from its Proximity to Multiple Environmental Hazards. Parcel E-2 is located immediately adjacent to the Hunters Point Shipyard (HPS) community, which is a part of the larger Bayview Hunters Point (BHP) Community in San Francisco, California. According to the Navy's assessment of the community background, the majority of residents within the HPS community (which includes ZIP Code 94124, the area closest to the Hunters Point Naval Shipyard) are low-income minorities and suffer from	*[The Navy and EPA are working to develop a response to this comment.]*

Draft Record of Decision for Parcel E-2, Hunters Point Naval Shipyard

Comments by Lippe Gaffney Wagner LLP (Cathy D. Lee) dated May 15, 2012 *(continued)*

Comment No.	Comment	Response
4. *(cont.)*	high unemployment rates. Final Hunters Point Shipyard Community Involvement Plan ("HPS CIP"), Department of Navy, May 2011, Appendix D, pg. D-1 - D-9. Additionally, the HPS community encompasses the low-income Oakdale public housing development and the low-income affordable development of Mariners Village. Thus, especially due to the close proximity to Parcel E-2, the selection of remedy for the cleanup of Parcel E-2 directly affects the low-income and minority populations that reside in the HPS community. Based on the high number of low-income minority residents, the HPS community is an environmental justice community which has suffered and continue to suffer from the potentially disproportionate impacts of (1) the proximity and exposure to environmental hazards, mainly the Hunters Point Naval Shipyard Superfund site (particularly the Parcel E-2 landfill) and numerous industrial facilities, and (2) multiple and cumulative effects of residing near numerous environmental hazards, including industrial facilities, landfills, transportation-related air pollution, poor housing, leaking underground tanks, pesticides, and incompatible land uses. See EJ in Rulemaking Guidance, at pg. 7-9. The existence of multiple generators of hazardous waste as defined under the Resource Conservation and Recovery Act (RCRA), underground storage tanks, and soil and groundwater contamination within the HPS community is direct evidence of the multiple environmental hazards and industrial pollution borne by its residents. The following industrial facilities and underground tanks are located within the HPS community and near Parcel E-2: 3 underground storage tanks located at 996 Innes Ave. of unknown contents which may be leaking. 895 Innes Ave. in Zone NE07 – Chemicals detected in soil and groundwater include lead, total xylenes, methyl tert-butyl ether, ethylbenzene, TPH, toluene, and benzene.	*[The Navy and EPA are working to develop a response to this comment.]*

Draft Record of Decision for Parcel E-2, Hunters Point Naval Shipyard

Comments by Lippe Gaffney Wagner LLP (Cathy D. Lee) dated May 15, 2012 *(continued)*

Comment No.	Comment	Response
4. *(cont.)*	394 Innes Ave. in Zone NE08 – Donco Industries Inc. operates a RCRA-licensed facility and India Basin Boat Yard operates or has operated a facility where lead and copper have been detected in the soil on the property. 1389 Underwood in Zone SE04- Evergood Sausage Co. has an underground tank with unknown contents and the following chemicals have been detected in the soil and groundwater on the property – Benzene, Toluene, ehylbenzene, total xylenes, Lead, TPH as Gasoline. 1925 Ingalls St. in Zone SE04 – Die and Tool Products is a RCRA-licensed generator of hazardous waste. 1021 Palon Ave. in Zone SE05 –A tire sales & leasing facility which was listed on the Solid Waste Landfill database. 11 underground storage tanks in Zone SE06 of mostly unknown contents which may be leaking. 1400 Yosemite Ave. in Zone SE06 – Rollamatic Roofs Inc. is a large RCRA-licensed generator of hazardous waste. 2501 Jennings Ave. in Zone SE06 – J Henry Auto Body is a large RCRA-licensed generator of hazardous waste. 1430 Yosemite Ave. in Zone SE06 – Jim K Auto Body is a RCRA-licensed generator of hazardous waste. 1370 Van Dyke Ave. in Zone SE06 – Micro Tracers, Inc. is a RCRA-licensed generator of hazardous waste. 1590 Yosemite Ave. in Zone SE06 – The following chemicals have been detected in the groundwater on 7Up Bottling Company's property: TPH as gasoline, TPH as diesel, benzene, toluene, ethylbenzene, total xylenes, and lead. 11 underground storage tanks in Zone SE07 of mostly unknown contents which may be leaking. 1025 Quesada St. in Zone SE07 – Peters Painting & Waterproofing is a large RCRA- licensed generator of hazardous waste.	*[The Navy and EPA are working to develop a response to this comment.]*

Draft Record of Decision for Parcel E-2, Hunters Point Naval Shipyard

Comments by Lippe Gaffney Wagner LLP (Cathy D. Lee) dated May 15, 2012 *(continued)*

Comment No.	Comment	Response
4. *(cont.)*	1030 Quesada St. in Zone SE07 – Buchner Design Studio is a large RCRA-licensed generator of hazardous waste. 1212 Thomas Ave. in Zone SE07 - DHS TSCP Bay Area Drum Site is a large RCRA- licensed generator of hazardous waste. The following chemicals have been detected in the soil and groundwater on Bay Area Drum Company's property: TPH as motor oil, TPH as diesel, TPH as gasoline, oil & grease, pesticides, PCBs, chlorinated VOCs, SVOCS, and metals. 2125 Ingalls St. in Zone SE07 – Interstate Marketing System is a RCRA-licensed generator of hazardous waste. 1153 Shafter Ave. in Zone SE07 – Bay View Cleaners is a RCRA-licensed generator of hazardous waste. 2059 Ingalls St. in Zone SE07 – Modern Drapery Services is a RCRA-licensed generator of hazardous waste. 1135 Revere Ave. in Zone SE07 - R&D Truck & AB is a RCRA-licensed generator of hazardous waste. 1212 Underwood Ave. in Zone SE07 – Superior Furniture is a RCRA-licensed generator of hazardous waste. 1150 Thomas Ave. in Zone SE07 – The following chemicals have been detected in the soil of Florence's Distribution Co.'s property: toluene, TPH as gasoline, total xylene, benzene, ethyl benzene. 1515 Griffith St. in Zone SE07 – The following chemicals have been detected in the soil of Arnold & Egan MFG, Co Inc.'s property: diesel and gasoline components. See Reference Report Summarizing Environmental Conditions, Bayview Hunters Point Brownfields Pilot Project, San Francisco, California, April 1998, pg. 51-57, 109-126. The above list of industrial facilities, hazardous waste generators, underground tanks and soil and groundwater contaminations within the HPS community represents only a small sample of sources of pollution in or	*[The Navy and EPA are working to develop a response to this comment.]*

Draft Record of Decision for Parcel E-2, Hunters Point Naval Shipyard

Comments by Lippe Gaffney Wagner LLP (Cathy D. Lee) dated May 15, 2012 *(continued)*

Comment No.	Comment	Response
4. *(cont.)*	around the HPS community. Nonetheless, this list is illustrative of the multiple environmental hazards that have been and continue to plague the HPS community. Based on this information, the Navy and the EPA were required to assess and consider disproportionate impacts of environmental hazards to the HPS community from both the proximity to these environmental hazards and the multiple and cumulative effects of such environmental hazards. c. The Navy and the EPA Failed to Assess and Consider Disproportionate Environmental Impacts on the Low Income and Minority Populations Near Parcel E-2 During its Remedy Selection Process. Despite the availability of evidence that the HPS community is already overburdened with environmental hazards, the Navy and the EPA did not adequately consider whether each alternative remedy poses disproportionately high and adverse human health and environmental effects to these populations. Rather, the extent of the Navy's discussion of environmental justice issues at Parcel E-2 was limited only to the public participation component during the remedy selection process: > At Hunter's Point Shipyard, the Navy has incorporated the principles of environmental justice into the planning and preparation of this Community Involvement Plan. The Navy is addressing environmental justice through its outreach efforts, public participation process, and by providing access to information in a variety of ways. This includes providing information, as needed, in other languages. Community members are encouraged to be involved in the cleanup process by providing feedback and information on an ongoing basis. The Navy acknowledges that community members, especially long-time residents, have knowledge about HPS activities which may assist the cleanup activities. *HPS CIP, at pg. 5.*	*[The Navy and EPA are working to develop a response to this comment.]*

Draft Record of Decision for Parcel E-2, Hunters Point Naval Shipyard

Comments by Lippe Gaffney Wagner LLP (Cathy D. Lee) dated May 15, 2012 *(continued)*

Comment No.	Comment	Response
4. *(cont.)*	Additionally, although the Responsiveness Summary of the Draft ROD reports to have taken environmental justice issues into consideration, it appears that all the Navy did was carry out its preexisting duties under CERCLA in discussing the following points: 1. Substantial regulatory review and oversight of all Navy cleanup activities, 2. Substantial financial commitment from the Navy to HPNS cleanup, 3. EPA's Technical Assistance Grants to the community for community groups to review and provide independent input on the Navy's plans and reports, 4. Community engagement under the Navy's updated Community Involvement Plan, 5. Employment of community members in assisting with the cleanup program, and 6. Commitment to protective cleanup actions. *Responsiveness Summary, Attachment 3 of Draft ROD, pg. 2-3.* Incorporating environmental justice policies into the remedy selection process must be distinguishable from merely focusing on community involvement and the "protectiveness" of the cleanup action. Unfortunately, based on our review of the Draft ROD and HPS CIP, what the Navy purports is "consideration" of environmental justice issues clearly falls far from the mark. Based on our review of the ROD and CIP we can only conclude that the Navy and the EPA have failed to assess how selecting Alternative 5 (capping the landfill portion) as opposed to Alternative 2 (complete removal of the Parcel E-2 Landfill) would disproportionately impact low-income and minority populations that reside in close proximity to Parcel E-2, especially in light of (1) the historical disposal of a variety of military, industrial, and unknown hazardous wastes in the Parcel E-2 landfill, (2) the inadequate characterization of the wastes contained therein (see Part II), and (3) the disproportionate impacts of environmental hazardous currently suffered by the BVHP community from numerous, existing industrial facilities, hazardous	*[The Navy and EPA are working to develop a response to this comment.]*

Draft Record of Decision for Parcel E-2, Hunters Point Naval Shipyard		
Comments by Lippe Gaffney Wagner LLP (Cathy D. Lee) dated May 15, 2012 *(continued)*		
Comment No.	**Comment**	**Response**
4. *(cont.)*	waste generators, underground tanks and soil and groundwater contaminations. See EO 12898 and EJ in Rulemaking Guidance. In order to fulfill the environmental justice policies set forth in EO 12898 and the EPA and DoD guidance documents, the Navy and the EPA would have needed to assess and consider whether each alternative remedy poses disproportionately high and adverse human health and environmental effects to the HPS community during the remedy selection process under CERCLA. Based upon our review this did not occur.	*[The Navy and EPA are working to develop a response to this comment.]*
5.	V. Conclusion As demonstrated above, the Navy did not (1) adequately and consistently with the applicable laws and guidances characterize the waste contained in the Parcel E-2 landfill, (2) adequately and consistently with the applicable laws and guidances analyze the cost-effectiveness of the selected remedy and (3) adequately and consistently with the applicable laws and guidances address environmental justice concerns during the remedy selection process. Recommendation to Arc Ecology It is Lippe Gaffney Wagner's recommendation to Arc Ecology that it inform the Navy and the EPA of the results of our review of the Parcel E2 Draft Record of Decision and share with these agencies and the public our identifications of the flaws within their analysis. We recommend that Arc Ecology request that the Navy and the EPA (1) conduct a full characterization of the waste in the Parcel E-2 landfill, (2) revise its cost analysis for Alternative 5 to reflect the long-term maintenance costs of containment of the landfill for as long as it is necessary, (3) assess and consider whether each alternative remedy could have a disproportionate impact on the environmental justice community near Parcel E-2, giving full and fair consideration to the deficiencies raised in the foregoing comments, and (4) reconsider each alternative prior to issuing a Final Draft ROD.	As previously discussed, the Navy strongly disagrees with the reviewer's assertions. The Navy believes that the information contained in the administrative record demonstrates that the Parcel E-2 Landfill was adequately characterized to support an informed risk management decision in accordance with the NCP and pertinent EPA guidance and the selected remedy is fully and equally protective of all members of the public, including the HPNS community. Further, the Navy believes that it has properly developed and evaluated the remedial alternatives for Parcel E-2 in accordance with the NCP and pertinent EPA guidance. Please refer to the responses to Lippe Gaffney Wagner LLP's specific comments on the Draft ROD for more detailed information in support of the Navy's position.

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Comments by Subra Company (Wilma Subra on behalf of POWER and SLAM) dated April 27, 2012

Comment No.	Comment	Response
1.	The following comments on the Draft Record of Decision for Parcel E-2 of the Hunters Point Naval Shipyard are submitted on behalf of People Organized to Win Empowerment Rights (POWER) and Stop Lennar Action Movement (SLAM). A large quantity of contaminated soil will remain on site at Parcel E-2. Five-year reviews are scheduled to be performed at Parcel E-2 because contaminants will remain on site above concentrations that allow for unrestricted use and unlimited exposure. Due to the substantial quantity of contaminated soil to remain on site after the remedy is completed, reviews of the effectiveness of the remedy should be required more frequently than every five years. Annual reviews of the effectiveness of the remedy would be more appropriate. In addition, the condition of the cap/cover should be evaluated on a quarterly basis to insure its integrity.	The Navy wishes to clarify that the five-year reviews of the Parcel E-2 remedy would be performed to satisfy a CERCLA[6] statutory requirement, and these reviews do not replace the regular inspections, maintenance, and monitoring that would occur. As described in the response to comment 5 on the Proposed Plan, the selected remedy includes the following monitoring and maintenance activities that would be performed on a regular schedule and for as long as necessary to protect human health and the environment and to comply with pertinent state and federal ARARs: • Groundwater monitoring will be performed, consistent with the requirements of Cal. Code Regs., tit. 22 § 66264.100(d) and § 66264.310(b)(3), to verify that chemical concentrations in groundwater do not exceed concentrations designated by the RAOs at the compliance boundary. • Landfill gas monitoring will be performed to demonstrate compliance with Cal. Code Regs., tit. 27 § 20917 through § 20934. • Stormwater and erosion controls will be installed and maintained as required under Cal. Code Regs., tit. 27 § 20365(c) and (d), and stormwater discharges will be monitored as required under Title 22 Cal. Code Regs. § 66264.97(c)(1) and (c)(2)(B). • The cover will be inspected and maintained to ensure its integrity as required under Cal. Code Regs., tit. 27 § 21180(a). The long-term monitoring and maintenance program will be detailed in the post-closure operation and maintenance plan for Parcel E-2, consistent with content requirements as provided in Cal. Code Regs., tit. 27 § 21800(c), and submitted for review and approval by EPA, DTSC, and the Water Board in conjunction with the RD. Regulatory oversight will continue during long-term operation and maintenance of the selected remedy.

[6] Acronyms and abbreviations are summarized at the end of this attachment.

Draft Record of Decision for Parcel E-2, Hunters Point Naval Shipyard

Comments by Subra Company (Wilma Subra on behalf of POWER and SLAM) dated April 27, 2012 *(continued)*

Comment No.	Comment	Response
2.	The Navy based the remedy selection process on community support from the San Francisco Redevelopment Agency, the Mayor's Hunters Point Shipyard Citizens Advisory Committee and a number of engaged citizens living in close proximity to Hunters Point Naval Shipyard. The Navy ignored the input from a large segment of the community that provided input in opposition to Alternative 5 as the preferred remedy. The Navy stated that the information presented by members of the community that did not support Alternative 5 does not justify modification of Alternative 5, or selection of a different alternative, based on community acceptance criteria. The Navy selected which portion of the community they would associate with as the portion of the community that agreed with their selection alternative. The Navy failed to make any effort to address the concerns of the other portion of the community that raised legitimate concerns regarding the selected preferred remedy alternative. The Navy basically developed the draft ROD based on the Proposed Plan and failed to consider the comments submitted on behalf of the portions of the community that did not concur with the Navy's Proposed Plan.	The Navy disagrees with the reviewer's assertion that community input expressing concern regarding the selected remedy was ignored. The Navy prepared a responsiveness summary (Attachment 3 to the ROD) that provides detailed responses to each community comment received on the Proposed Plan. The comments received on the Proposed Plan identified a range of concerns, each of which were addressed in the responsiveness summary. In addition, Section 2.8.2 in the Draft ROD describes the Navy's evaluation of the community acceptance criterion: *"In general, public comments expressed a preference for Alternative 2 and concerns regarding the long-term effectiveness of Alternatives 3, 4, and 5. However, segments of the community, represented by the San Francisco Redevelopment Agency and the Mayor's Hunters Point Shipyard Citizens Advisory Committee, as well as a number of engaged citizens who live in close proximity to HPNS, have expressed their support of Alternatives 4 and 5."* The Navy believes that this description accurately describes the input received and supports the rating of each remedial alternative relative to the community acceptance criterion. As described in the responsiveness summary, the remedial alternatives for Parcel E-2 were evaluated relative to nine CERCLA remedy selection criteria identified in the federal regulation called the NCP. Criteria 1 and 2 (protection of human health and the environment and compliance with ARARs) are threshold criteria that each alternative must meet to be eligible for selection. Criteria 3, 4, 5, 6, and 7 are balancing criteria used to weigh major tradeoffs in the benefits and limitations among alternatives. Criteria 8 and 9 (state acceptance and community acceptance) are modifying criteria considered in the ROD. The preferred alternative published in the Proposed Plan (Alternative 5) complies with the two threshold criteria and provides the best balance of tradeoffs with respect to the five balancing criteria. The Navy's evaluation of the two modifying criteria (including community acceptance) did not warrant changes to the preferred alternative. In summary, the Navy believes that the Draft ROD, including supporting information contained in the administrative record, adequately demonstrates that safely isolating and capping the Parcel E-2 Landfill (as specified in Alternative 5) presents less overall risk to the adjacent community when compared with the risks of other cleanup alternatives evaluated, including complete removal of the Parcel E-2 Landfill (in Alternative 2).

Draft Record of Decision for Parcel E-2, Hunters Point Naval Shipyard		
Comments by San Francisco Green Party (Eric Brooks) dated April 30, 2012		
Comment No.	**Comment**	**Response**
1.	Your responses to my previous public comments on your "Proposed Plan for cleanup of Parcel E-2, which includes a landfill along the shoreline at Hunters Point Naval Shipyard in San Francisco, California" are in adequate and essentially non-responsive. My comments and your responses can be read in the attached "Draft_E-2_Respon-Summ-1" from pages 99-106. Your responses are inadequate and non-responsive as follows:	The Navy's responses to the additional comments are provided on the following pages.
2.	SEA LEVEL RISE (Pages 99-102): Your response gives no credible argument for your claim that the worst case 5 meter sea level rise scenario predicted by NASA climate scientist James Hansen, should not be considered in the cleanup plan. Furthermore, it is now known that an earthquake in Alaska of similar character to the March 2011 earthquake off of Japan, could cause a catastrophic tsunami similar to that which was created by the Japan earthquake. Such a tsunami originating in Alaska has the potential to generate a flood surge of at least 8 feet in the Parcel E-2 cleanup area. Such a flood surge, in addition to even the potential sea level rise prediction of 2 meters cited in my previous comments referencing "The Copenhagen Diagnosis" would, at best, leave an unacceptable zero margin for error in the sea rise remedies that you have cited, and in the case of Hansen's 5 meter sea level rise prediction, your cited remedies would fail to adequately protect the Parcel E-2 cleanup area in the case of the combined impact of a maximum 5 meter sea level rise and an 8 foot tsunami flood surge.	As stated in the response to the original comment, the Navy does not agree with the reviewer's assertion that the selected remedy must account for a worst-case scenario of a 5 meter rise in sea level. The reviewer's original comment acknowledged the speculative nature of the cited report from Mr. Hansen, but requested that it be considered in developing the cleanup plan for Parcel E-2 because "*there is absolutely no reason whatsoever to doubt Hansen's predictions; especially in light of the fact that Hansen's past predictions have consistently proved to be correct.*" The Navy does not find this rationale to be adequately justified and notes that none of the regulatory agencies who oversee the Navy's cleanup program have put forth a similar recommendation (nor was Mr. Hansen's worst-case scenario repeated in the "Copenhagen Diagnosis" document cited in the original comment). As stated in the response to the original comment, the revetment structure will be further evaluated in the RD[7] relative to the most current IPCC estimates for a rise in sea level. In addition, the selected remedy will be subject to statutory reviews every 5 years (pursuant to CERCLA) to ensure that it remains protective of human health and the environment. The five-year reviews will consider multiple technical factors, including but not limited to potential rise in sea level.

[7] Acronyms and abbreviations are summarized at the end of this attachment.

Draft Record of Decision for Parcel E-2, Hunters Point Naval Shipyard

Comments by San Francisco Green Party (Eric Brooks) dated April 30, 2012 *(continued)*

Comment No.	Comment	Response
3.	SEA LEVEL RISE INTERACTION WITH LIQUEFACTION AND HAZARDOUS MATERIALS (pages 102-103): Your assertions that; "The Navy studied soil in and around the Parcel E-2 Landfill and found that most soil would not liquefy even during the maximum probable earthquake, and the soil layers that might liquefy would be controlled through proper design and construction of the final cover using methods that are well established for sites in the San Francisco Bay area.", "In addition, the Navy's previous study revealed that the potentially liquefiable soil layers in and around the Parcel E-2 Landfill are located 10 feet or deeper below the ground surface, meaning that these soil layers are already saturated with groundwater and the degree of saturation would not be significantly affected by rising water levels.", and "As described on page 17 of the Proposed Plan, the preferred alternative also includes the following elements to control potential leaching of chemicals from the Parcel E-2 Landfill: (1) the protective liner would limit infiltration from the ground surface into the landfill waste;..." are dramatically inadequate. The problem with your proposed remedies is that, regardless of saturation, a long term infusion of sea waters into the Parcel E-2 cleanup area will enhance the probability of escape of hazardous materials, and your contention that "most" soil would not liquefy patently fails to address the dangers of -any- of the soil liquefying. Furthermore, protective liners as that which you have described almost inevitably develop small holes, and even a 2 millimeter hole in such a liner has the potential to allow tens of thousands of gallons per year of water from rainfall to flush outside of the liner. Since any leaching of any amount of hazardous material in these scenarios could simply be avoided by removing -all- such hazardous material from the cleanup area, a cleanup plan which does not remove -all- hazardous materials from Parcel E-2 is not sufficiently protective, and therefore unacceptable.	As stated in the response to the original comment, the Navy does not believe there is a sufficient technical basis to support the reviewer's request to remove the Parcel E-2 Landfill because of concerns regarding potential sea level rise, liquefaction, and release of hazardous materials. The Navy noted the following technical deficiencies in the reviewer's recommendations: • The reviewer's assertion of a "*long term infusion of sea waters into the Parcel E-2 cleanup area*" appears to be predicated on the worst-case scenario of a 5-meter rise in sea level that, as discussed in the previous response, is based on speculative conclusions. As stated in the response to the original comment, the selected remedy would provide an adequate level of shoreline protection that can reasonably accommodate rising sea levels over the next 100 years and will be subject to statutory reviews every 5 years (pursuant to CERCLA) to ensure that it remains protective of human health and the environment. The five-year reviews will consider multiple technical factors, including but not limited to potential rise in sea level. • The reviewer's concern regarding the "*dangers of -any- of the soil liquefying*" does not acknowledge that the purpose of evaluating liquefaction potential at landfill sites is to quantify the potential vertical and horizontal displacement of soil during an earthquake and to assess whether an appropriate engineered approach can be developed to mitigate potentially unacceptable displacement. Therefore, the reviewer's implication that "*any*" liquefaction is unacceptable is not consistent with widely accepted engineering practice. • The reviewer's assertion that "*even a 2 millimeter hole in such a liner has the potential to allow tens of thousands of gallons per year of water from rainfall to flush outside of the liner*" does not acknowledge that landfill liners are typically designed to attain a hydraulic conductivity (such as 1×10^{-6} centimeters per second) that is very low but provides tolerable limits for potential infiltration. Further, as stated in Section 12.2.3.6 of the Final RI/FS Report: "*Any additional leachate generated by infiltration through defects in the geosynthetic cap would have no significant effect on overall effectiveness of the remedy compared to its current condition, where uncapped landfilled wastes are exposed to infiltration through the existing soil cover.*"

Draft Record of Decision for Parcel E-2, Hunters Point Naval Shipyard

Comments by San Francisco Green Party (Eric Brooks) dated April 30, 2012 *(continued)*

Comment No.	Comment	Response
4.	FAILURE TO MEET THE LEGAL PRECAUTIONARY PRINCIPLE ESTABLISHED BY ORDINANCE IN THE SAN FRANCISCO, CALIFORNIA, ENVIRONMENT CODE CHAPTER 1: PRECAUTIONARY PRINCIPLE POLICY STATEMENT (pages 104-105): Your response completely fails to address my citing of the San Francisco Precautionary Principle Ordinance and its relationship to the various hazardous materials which I cited in my comments in this section of the response document, which have no safe level of exposure. Instead, you stated "In addition, the preferred alternative is generally consistent with Proposition P, as explained in the responses to comments from Arc Ecology (see pages 8 and 9 of this responsiveness summary)." Since Proposition P as you cite it, is an entirely different policy which has little or nothing to do with the San Francisco Precautionary Principle Ordinance, your responses in this section are wholly inadequate and do not confirm that your preferred alternative is acceptable. The San Francisco Precautionary Principle Ordinance is clear, and must be strictly followed by the Navy in its cleanup of Parcel E-2. Therefore only a complete removal of all hazardous materials from the cleanup area is acceptable.	The Navy's previous response focused on the substantive portions of the subject comment, which related to potential exposure to chrysotile asbestos, ionizing radiation, and other hazardous materials. As stated in the previous response, the information contained in the administrative record, which includes pertinent regulatory guidance and site-specific input from various stakeholders, demonstrates that the selected remedy for Parcel E-2 would be protective of human health and the environment and comply with all pertinent federal and state ARARs. The Navy wishes to clarify that the precautionary principle, incorporated as a policy statement in Chapter 1 of the San Francisco Environment Code, is a local governmental policy and is not a federal or state statute or promulgated regulation. Therefore, the precautionary principle is not a CERCLA federal or state ARAR for purposes of CERCLA remedy selection in Parcel E-2. In addition, the precautionary principle policy statement, as reflected in Chapter 1 of the San Francisco Environment Code, contains no substantive provisions that would pertain to evaluation and selection of a CERCLA remedial action. The Navy believes that the nine NCP evaluation criteria, which were used to evaluate each remedial alternative for Parcel E-2, adequately capture the elements described in the CCSF's policy statement. Further, the Navy believes that nothing in the cited precautionary principle policy statement would mandate "*complete removal of all hazardous materials*," as suggested by the reviewer.

ACRONYMS AND ABBREVIATIONS

ARARs	applicable or relevant and appropriate requirement
ARIC	area requiring institutional control
Army	Department of the Army
BAAQMD	Bay Area Air Quality Management District
BCT	BRAC Cleanup Team
bgs	below ground surface
BRAC	Base Realignment and Closure
Cal. Code Regs.	California Code of Regulations
CCSF	City and County of San Francisco
CDFG	California Department of Fish and Game
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CIP	Community Involvement Plan
COECs	chemicals of ecological concern
COPECs	chemicals of potential ecological concern
DERP	Defense Environmental Restoration Program
DoD	U.S. Department of Defense
DoDM	U.S. Department of Defense Manual
DOE	U.S. Department of Energy
DPH	Department of Public Health
DTSC	Department of Toxic Substances Control
EPA	U.S. Environmental Protection Agency
ERRG	Engineering/Remediation Resources Group, Inc.
EIR	Environmental Impact Report
E.O.	executive order
Fed. Reg.	Federal Register
FFA	Federal Facility Agreement
F&GC	Fish & Game Code
FS	Feasibility Study
GAC	granular activated carbon
HDPE	high-density polyethylene
HHRA	human health risk assessment
HPNS	Hunters Point Naval Shipyard
HRA	Historical Radiological Assessment
IR	Installation Restoration
IPCC	Intergovernmental Panel on Climate Change
LUC RD	land use control remedial design
MCL	maximum contaminant level
mg/kg	milligrams per kilogram

ACRONYMS AND ABBREVIATIONS (CONTINUED)

NAS	Naval Air Station
Navy	Department of the Navy
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NMOCs	nonmethane organic compounds
NRC	U.S. Nuclear Regulatory Commission
NRDL	Naval Radiological Defense Laboratory
NSF	National Science Foundation
OSPR	Office of Spill Prevention and Response
OSWER	Office of Solid Waste and Emergency Response
PCB	polychlorinated biphenyl
pCi/g	picocurie per gram
PCE	tetrachloroethene
PSCs	protective soil concentrations
RAOs	remedial action objectives
RD	remedial design
RI	Remedial Investigation
ROC	radionuclide of concern
ROD	Record of Decision
SFRA	San Francisco Redevelopment Agency
Shaw	Shaw Environmental Inc.
SLERA	screening-level ecological risk assessment
TAG	Technical Assistance Grants
TCRA	time-critical removal action
tit.	Title
VOC	volatile organic compound
UCSF	University of California San Francisco
Water Board	San Francisco Bay Regional Water Quality Control Board
§	Section

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